CDX-646/646X

SERVICE MANUAL

Ver 1.1 2001.07

US Model
Canadian Model
AEP Model
UK Model
CDX-646
E Model
CDX-646/646X

Photo: CDX-646

Model Name Using Similar Mechanism	CDX-601/636
CD Drive Mechanism Type	MG-251A-137
Optical Pick-up Name	KSS-720A/Q-N

SPECIFICATIONS

System	Compact disc digital audio system
Laser diode properties	Material: GaAlAs Wavelength: 780 nm Emission Duration: Continuous Laser out-put Power: Less than 44.6 µW*

** This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.*

Frequency response	10 – 20,000 Hz
Wow and flutter	Below the measurable limit
Signal-to-noise ratio	94 dB
Outputs	BUS control output (8 pins) Analog audio output (RCA pin)
Current drain	800 mA (during CD playback) 800 mA (during loading or ejecting a disc)
Operating temperature	–10°C to +55°C (14°F to 131°F)
Dimensions	Approx. 262 × 90 × 185 mm ($10^{3}/8 \times 3^{5}/8 \times 7^{3}/8$ in.) (w/h/d) not incl. projecting parts and controls
Mass	Approx. 2.1 kg (4 lb. 10 oz.)
Power requirement	12 V DC car battery (negative ground)
Supplied accessories	Disc magazine (1) Parts for installation and connections (1 set)

Design and specifications are subject to change without notice.

COMPACT DISC CHANGER

9-870-218-12
2001G0500-1
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Sony Corporation
e Vehicle Company
Shinagawa Tec Service Manual Production Group

SONY®

SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

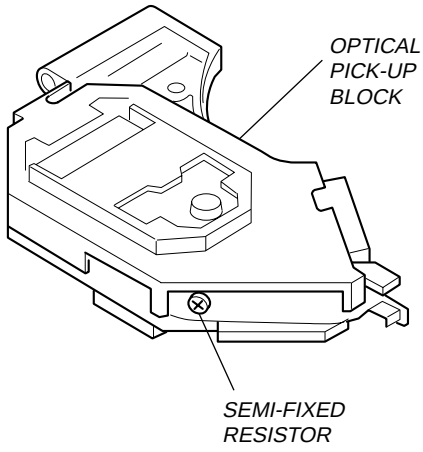
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

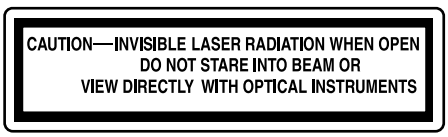
US/Canadian model:

If the optical pick-up block is defective, please replace the whole optical pick-up block.
Never turn the semi-fixed resistor located at the side of optical pick-up block.



AEP/UK model:

This product is classified as a CLASS 1 LASER PRODUCT.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



This label is located on the drive unit's internal chassis.

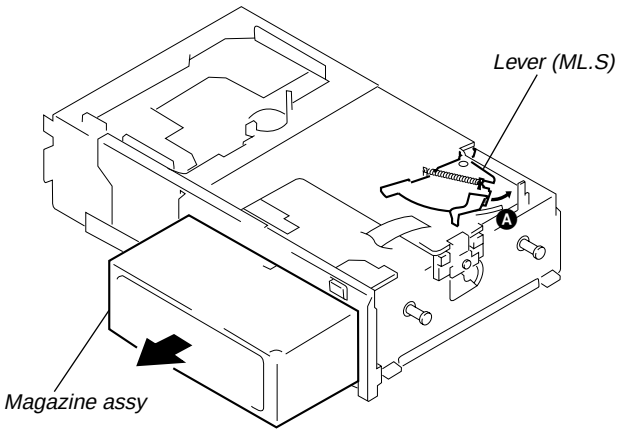
When replacing the chassis (U.S) sub assy of mechanism deck which have the "CAUTION LABEL" attached, please be sure to put a new CAUTION LABEL (3-223-913-11) to the chassis (U.S) sub assy.

DISC MAGAZINE GETTING OUT PROCEDURE ON THE POWER SUPPLY IS OFF

Remove the CASE (LOWER. T) beforehand

1) Press the lever (ML.S) assy in the direction of arrow Ⓐ.
2) Removal the magazine assy.

Note: Take out the magazine only when the tray is completely within the magazine. If the disk or tray is sticking out, turn on the power and eject the magazine.



CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

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Installation

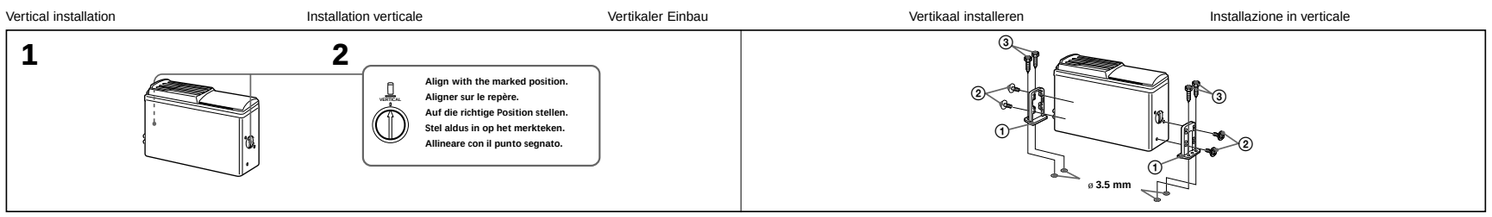
Precautions

- Choose the mounting location carefully, observing the following:
  - The unit is not subject to temperatures exceeding 55°C (such as in a car parked in direct sunlight).
  - The unit is not subject to direct sunlight.
  - The unit is not near heat sources (such as heaters).
  - The unit is not exposed to rain or moisture.
  - The unit is not exposed to excessive dust or dirt.
  - The unit is not subject to excessive vibration.
  - The fuel tank should not be damaged by the tapping screws.
  - There should be no wire harnesses or pipes under the place where you are going to install the unit.
  - The spare tire, tools or other equipment in or under the trunk should not be interfered with or damaged by the screws or the unit itself.
- Be sure to use only the supplied mounting hardware for a safe and secure installation.
- Use only the supplied screws.
- Make holes of ø 3.5 mm only after making sure there is nothing on the other side of the mounting surface.

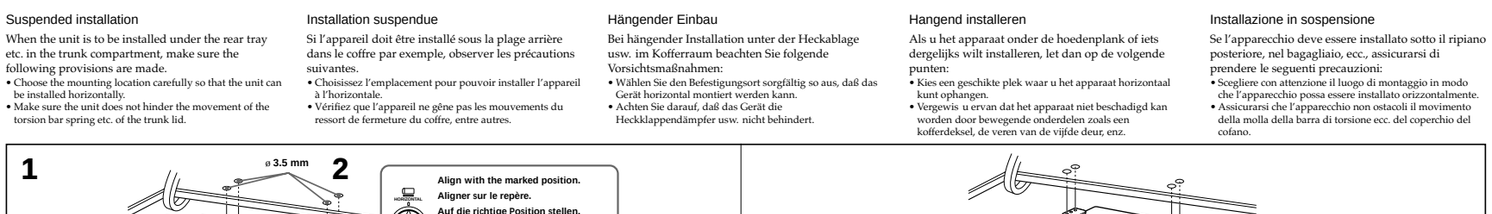
How to install the unit

The brackets ① provide two positions for mounting, high and low. Use the appropriate screw holes according to your preference.

Horizontal installation



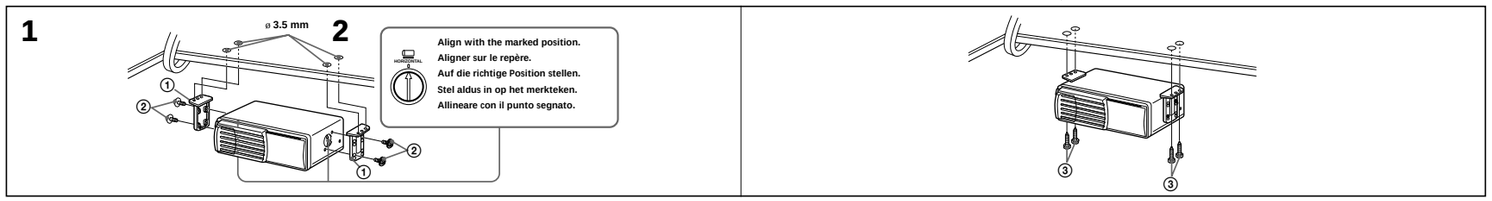
Vertical installation



Suspended installation

When the unit is to be installed under the rear tray etc. in the trunk compartment, make sure the following provisions are made.

- Choose the mounting location carefully so that the unit can be installed horizontally.
- Make sure the unit does not hinder the movement of the torsion bar spring etc. of the trunk lid.



Inclined installation

After installing the unit, align the dials with one of the marks so that the arrows are as vertical as possible.

Note
Be sure to align the left and right dials with the same mark.

Installation

Précautions

- Choisissez l'emplacement de montage en tenant compte des observations suivantes :
  - L'appareil ne doit pas être exposé à des températures supérieures à 55°C (comme dans une voiture garée en plein soleil).
  - L'appareil ne doit pas être utilisé en plein soleil.
  - L'appareil ne doit pas être utilisé près d'une source de chaleur (comme un chauffage).
  - L'appareil ne doit pas être utilisé dans un endroit exposé à la pluie ou à l'humidité.
  - L'appareil ne doit pas être utilisé dans un endroitpoussiéreux ou sale.
  - L'appareil ne doit pas être exposé à des vibrations excessives.
  - Vérifiez que le réservoir d'essence ne risque pas d'être endommagé par les vis taraudeuses.
  - Il ne doit pas y avoir de faisceau de fils ou de tuyaux à l'emplacement du montage.
  - Vérifiez que l'appareil ou les vis ne risquent pas d'endommager ou de gêner la roue de secours, les outils, ou tout autre objet dans le coffre.
- Pour garantir la sécurité de l'installation, utiliser uniquement le matériel de montage fourni.
- Utilisez uniquement les vis fournies.
- Ne percez les trous de 3,5 mm de diamètre qu'après vous être assuré qu'il n'y avait rien de l'autre côté de la surface de montage.

Installation de l'appareil

Les supports ① offrent deux positions de montage, haut et bas. Utilisez les trous de vissage appropriés en fonction de vos préférences.

Installation horizontale

Installation verticale

Installation suspendue

Si l'appareil doit être installé sous la plage arrière dans le coffre par exemple, observer les précautions suivantes.

- Choisissez l'emplacement pour pouvoir installer l'appareil à l'horizontale.
- Vérifiez que l'appareil ne gêne pas les mouvements du ressort de fermeture du coffre, entre autres.

Installation inclinée

Après avoir installé l'appareil, alignez le disque sur l'un des repères afin que la flèche soit aussi proche que possible de la position verticale.

Remarque
Veillez à aligner les disques gauche et droite sur le même repère.

Installation

Sicherheitsmaßnahmen

- Bei der Wahl des Einbauortes ist folgendes zu beachten:
  - Das Gerät darf keinen Temperaturen über 55 °C ausgesetzt sein, wie sie z. B. in einem in der Sonne geparkten Fahrzeug auftreten können.
  - Das Gerät darf keiner direkten Sonneneinstrahlung ausgesetzt sein.
  - Das Gerät muß von Wärmequellen (z. B. der Heizung) ferngehalten werden.
  - Das Gerät darf weder Regen noch Feuchtigkeit ausgesetzt sein.
  - Das Gerät darf keinem übermäßigen Staub oder anderer Verschmutzung ausgesetzt sein.
  - Das Gerät darf keinen übermäßigen Vibrationen ausgesetzt sein.
  - Der Tank darf durch die Schneidschrauben nicht beschädigt werden.
  - Unter der Fläche, auf die das Gerät montiert werden soll, dürfen sich keine Kabelbäume oder Leitungen befinden.
  - Ersatzreifen, Werkzeug usw. im oder unter dem Kofferraum dürfen durch die Schneidschrauben nicht beschädigt werden. Achten Sie auch darauf, daß die Herausnahme des Ersatzreifens, Werkzeugs usw. nicht durch das Gerät behindert wird.
- Für sicheren und stabilen Einbau verwenden Sie ausschließlich die mitgelieferten Befestigungsteile.
- Verwenden Sie ausschließlich die mitgelieferten Schrauben.
- Bohren Sie die Löcher mit einem Durchmesser von 3,5 mm erst, wenn Sie sich vergewissert haben, daß sich nichts auf der Rückseite der Montagefläche befindet.

Installation des Gerätes

Die Halterungen ① eignen sich für zwei Einbaupositionen, oben und unten. Verwenden Sie je nach Bedarf die geeigneten Bohrungen.

Horizontaler Einbau

Vertikaler Einbau

Hängender Einbau

Bei hängender Installation unter der Heckablage usw. im Kofferraum beachten Sie folgende Vorsichtsmaßnahmen:

- Wählen Sie den Befestigungsort sorgfältig so aus, daß das Gerät horizontal montiert werden kann.
- Achten Sie darauf, daß das Gerät die Heckklappendämpfer usw. nicht behindert.

Inclined installation

After installing the unit, align the dials with one of the marks so that the arrows are as vertical as possible.

Note
Be sure to align the left and right dials with the same mark.

Installeren

Voorzorgsmaatregelen

- Kies de plaats van opstelling met zorg, zodat het toestel niet:
  - onderhevig is aan temperaturen boven de 55°C (zoals in een auto geparkeerd in de volle zon).
  - steeds blootgesteld wordt aan direkt zonlicht.
  - te dicht bij een warmtebron komt (zoals een autoverwarming).
  - nat kan worden, door regen, vocht of opspattend water.
  - in kontakt komt met veel stof of vuil.
  - onderhevig is aan sterke trillingen of schokken.
  - Let op dat de plaatschroeven de benzinetank niet beschadigen.
  - Kontroleer of onder de plaats waar u het apparaat wilt monteren geen bedrading of leidingen lopen.
  - Houd bij het monteren rekening met het reservewiel, gereedschappen en-eventueel in de kofferruimte aanwezige andere apparaten, zodat deze de compact disc wisselaar niet in de weg zitten, noch beschadigd kunnen worden door de montageschroeven van de laatste.
- In het belang van een veilige en stevige montage dient u uitsluitend het bijgeleverde montagemateriaal te gebruiken.
- Gebruik enkel de meegeleverde schroeven.
- Controleer of er niets achter het bevestigingsvlak zit en maak pas dan gaten van 3,5 mm diameter.

Installatie van het apparaat

De beugels ① zijn geschikt voor twee montageposities, hoog en laag. Maak gebruik van de vereiste schroefgaten afhankelijk van de gewenste montagepositie.

Horizontaal installeren

Vertikaal installeren

Hangend installeren

Als u het apparaat onder de hoedenplank of iets dergelijks wilt installeren, let dan op de volgende punten:

- Kies een geschikte plek waar u het apparaat horizontaal kunt ophangen.
- Vergewis u ervan dat het apparaat niet beschadigd kan worden door bewegende onderdelen zoals een kofferdeksel, de veren van de vijfde deur, enz.

Niet-horizontale plaatsing

Zodra de eenheid geplaatst is, draait u de ringen op een stand waarbij de pijl zoveel mogelijk in een vertikale positie staat.

Opmerking
Zet de linker-en de rechterring op dezelfde stand.

Installazione

Precauzioni

- Scegliere con cura il luogo di installazione, seguendo le istruzioni riportate di seguito ed evitando di installare l'apparecchio in luoghi:
  - soggetti a temperature oltre i 55°C (come in un'auto parcheggiata al sole).
  - esposti alla luce solare diretta.
  - vicini a fonti di calore (come impianti di riscaldamento).
  - esposti alla pioggia o all'umidità.
  - esposti a polvere o sporco eccessivi.
  - soggetti a vibrazioni eccessive.
  - Il serbatoio del carburante non deve essere danneggiato dalle viti filettanti.
  - Non devono essere presenti né cavi né tubi sotto il luogo scelto per l'installazione dell'apparecchio.
  - Le viti e l'apparecchio stesso non devono interferire con, o danneggiare, la ruota di scorta, gli attrezzi o altri dispositivi presenti dentro o sotto il bagagliaio.
- Assicurarsi di usare solo il materiale di montaggio in dotazione per un'installazione stabile e sicura.
- Utilizzare solo le viti in dotazione.
- Assicurarsi che non vi sia nulla sull'altro lato della superficie di montaggio, quindi effettuare fori di solo 3,5 mm di diametro.

Installazione dell'apparecchio

Le staffe ① consentono l'installazione in due diverse posizioni: alta e bassa. Utilizzare i fori per le viti in base alla posizione di installazione scelta.

Installazione in orizzontale

Installazione in verticale

Installazione in sospensione

Se l'apparecchio deve essere installato sotto il ripiano posteriore, nel bagagliaio, ecc., assicurarsi di prendere le seguenti precauzioni:

- Scegliere con attenzione il luogo di montaggio in modo che l'apparecchio possa essere installato orizzontalmente.
- Assicurarsi che l'apparecchio non ostacoli il movimento della molla della barra di torsione ecc. del coperchio del cofano.

Installazione in posizione inclinata

Dopo aver installato l'apparecchio, allineare le manopole ad una delle tacche in modo che la freccia sia il più verticale possibile.

Nota
Accertarsi di allineare le manopole di sinistra e di destra alla stessa tacca.

Connections/Connexions/ Anschlu /Aansluitingen/ Collegamenti

For details, refer to the Installation/Connections manual of each product.

Pour plus de d tails, consulter le manuel d'installation/connexions de chaque produit.

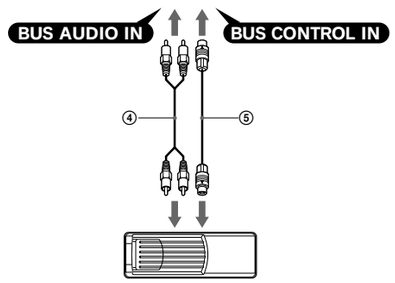
Einzelheiten entnehmen Sie der Installations-/Anschlu anleitung des betreffenden Ger ts.

Zie voor nadere bijzonderheden de gebruiksaanwijzing voor installatie en aansluitingen van de aan te sluiten apparatuur.

Per i dettagli, fare riferimento al manuale di installazione/collegamenti dell'autoradio.

Connection diagram/Sch ma de connexion/Anschlu diagramm/ Aansluitingsschema/Schema di collegamento

Sony BUS compatible car audio
Autoradio compatible BUS Sony
Mit dem BUS-System von Sony kompatible Autoanlage
Sony BUS compatibele auto-geluidsapparatuur
Autostereo compatibile con BUS Sony



CDX-646

Note
For connecting two or more changers, the XA-C30 source selector (optional) is necessary.

Remarque
Pour raccorder deux ou plusieurs changeurs, le sélecteur de source XA-C30 (en option) est nécessaire.

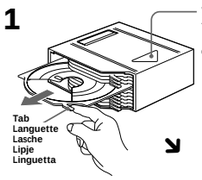
Hinweis
Zum Anschließen von zwei oder mehr Wechslern wird der gesondert erhältliche Signalquellenwähler XA-C30 benötigt.

Opmerking
Om twee of meer wisselaars aan te sluiten is de optionele geluidsbronkiezer XA-C30 vereist.

Nota
Per collegare uno o più cambia CD, è necessario il selettore di fonte XA-C30 (opzionale).

Inserting a disc / Insertion d'un disque / Einlegen von CDs / Een disc inbrengen / Inserimento di un disco

1



With the arrow side facing up
Avec la partie fléchée tournée vers le haut
Mit dem Pfeil nach oben
Met het pijltje naar boven
Con il lato della freccia rivolto verso l'alto

Labeled surface up
Etiquette vers le haut
Mit der beschrifteten Seite nach oben
Etiket naar boven
Con l'etichetta rivolta verso l'alto

10 discs, one in each tray
10 disques, un par plateau
Insgesamt 10 CDs (eine in jedem Fach)
Tien discs, in elke gleuf één
10 dischi, uno in ciascun comparto

Use the supplied disc magazine or the disc magazine XA-250. The disc magazine XA-10B can not be used with this unit. If you use any other magazine, it may cause a malfunction.

Utilisez le magasin à disques fourni ou un magasin à disques XA-250. Vous ne pouvez pas utiliser de magasin à disques XA-10B avec cet appareil. L'utilisation d'un autre type de magasin à disques risque de provoquer un dysfonctionnement.

Verwenden Sie das mitgelieferte CD-Magazin oder das CD-Magazin XA-250. Das CD-Magazin XA-10B kann nicht zusammen mit diesem Gerät eingesetzt werden. Wird ein anderes als das empfohlene CD-Magazin verwendet, kann es zu Fehlfunktionen kommen.

Gebruik het meegeleverde disc-magazijn of het disc-magazijn XA-250. Het disc-magazijn XA-10B kan niet met dit toestel worden gebruikt. Het gebruik van een ander magazijn kan defecten veroorzaken.

Utilizzare il contenitore dischi in dotazione o il contenitore dischi XA-250. Il contenitore dischi XA-10B non può essere utilizzato con questo apparecchio. Se si utilizza qualsiasi altro contenitore, potrebbero sorgere problemi di funzionamento.

Notes
- *To listen to an 8 cm CD, use the separately sold Sony CD adapter CSA-8. Be sure to always use the specified adapter, as failing to do so may cause a malfunction of the unit. If you use any other adapter, the unit may not operate properly. When using the Sony CD adapter, make sure the three catches on the adapter are firmly latched onto the 8 cm CD.*
- *Do not insert the Sony CD adapter CSA-8 in the magazine without a disc, malfunction may result.*

Remarques
- *Pour écouter une disque de 8 cm, utilisez l'adaptateur Sony CSA-8, vendu séparément, à l'exclusion de tout autre, pour éviter tout problème de fonctionnement. Si vous utilisez un autre adaptateur, l'appareil risque de ne pas fonctionner correctement. Quand vous utilisez l'adaptateur CD Sony, vérifiez que les trois griffes sont bien en prise sur le CD de 8 cm.*
- *Ne pas insérer d'adaptateur CD Sony CSA-8 dans le chargeur sans disque, car cela pourrait provoquer un dysfonctionnement.*

Hinweise
- *Zum Abspielen einer 8-cm-CD wird der Sony Adapter CSA-8 (Sonderzubehör) benötigt. Verwenden Sie keinen anderen Adapter, da es sonst zu Fehlfunktionen kommen kann. Achten Sie darauf, daß die drei Halterungen des Adapters richtig auf der 8-cm-CD sitzen.*
- *Setzen Sie den CD-Adapter CSA-8 von Sony nicht ohne CD in das Magazin ein, da es sonst zu Fehlfunktionen kommen kann.*

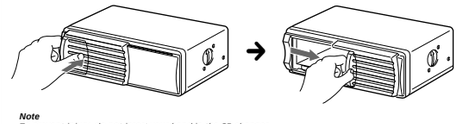
Opmerkingen
- *Voor het afspelen van een 8 cm CD-single heeft u de Sony adapter CSA-8 (los verkrijgbaar) nodig. Gebruik uitsluitend het voorgeschreven type adapter, aangezien anders storingen in de werking van het apparaat kunnen ontstaan. Bij gebruik van een ander type adapter kan het apparaat niet naar behoren funktioneren. Zorg bij gebruik van de CSA-8 adapter dat de drie palletjes hiervan het CD-singletje goed vasklemmen.*
- *Geen Sony CD-adapter CSA-8 zonder een disc in het magazijn inbrengen, want dit kan de werking verstoren.*

Note
- *Per riprodurre compact disc da 8 cm, usare l'adattatore Sony CSA-8 in vendita separatamente. Assicurarsi di utilizzare l'adattatore specificato onde evitare problemi di funzionamento dell'apparecchio. L'apparecchio potrebbe non funzionare correttamente con un adattatore diverso. Quando si usa l'adattatore Sony, assicurarsi che i tre fermi dell'adattatore si aggancino saldamente al compact disc da 8 cm.*
- *Non inserire l'adattatore CD Sony CSA-8 nel contenitore senza un disco, diversamente l'apparecchio potrebbe non funzionare correttamente.*

2

Push to unlock the door
Poussez pour déverrouiller la porte
Zum Entriegeln der Klappe hier drücken
Duwen om klep te ontgrendelen
Premere per sbloccare la porta

Slide open
Coulissez pour ouvrir
Öffnen
Openschuiven
Aprire facendo scorrere lo sportello



Note
To prevent injury, do not insert your hand in the CD changer.

Remarque
Pour éviter toute blessure, ne pas introduire la main dans le changeur de CD.

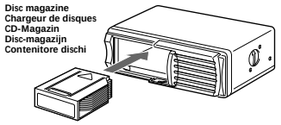
Hinweis
Um Verletzungen zu vermeiden, greifen Sie mit der Hand nicht in den CD-Wechsler.

Opmerking
Steek uw hand niet in de CD-wisselaar om verwondingen te voorkomen.

Nota
Per evitare danni alla persona, non inserire le mani nel cambia CD.

3

Disc magazine
Chargeur de disques
CD-Magazin
Disc-magazijn
Contenitore dischi



If the disc magazine does not lock properly
Take out the magazine, and after pressing the ⏏ (EJECT) button, reinsert it.

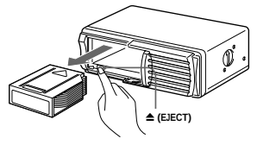
Si vous ne pouvez pas fermer le chargeur de disques
Sortez le chargeur et, après avoir appuyé sur la touche ⏏ (EJECT), réinsérez-le.

Wenn sich das CD-Magazin nicht richtig verriegeln läßt
Nehmen Sie das Magazin heraus, drücken Sie die ⏏ (EJECT)-Taste, und setzen Sie das Magazin dann wieder ein.

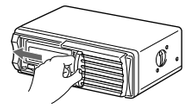
Als het disc-magazijn niet soepel op zijn plaats vastklikt
Verwijder het disc-magazijn, druk op de ⏏ (EJECT) toets en breng vervolgens het disc-magazijn opnieuw in.

Se il contenitore dischi non si blocca in posizione correttamente
Estrarlo e, dopo aver premuto il tasto ⏏ (EJECT), reinserirlo.

To remove
Retrait
Herausnehmen des CD-Magazins
Verwijderen
Per estrarre



4



Use the unit with the door closed completely
Otherwise, foreign matter may enter the unit and contaminate the lenses inside the changer.

Note
When a disc magazine is inserted into the CD changer or the reset button of the connected car audio is pressed, the unit will automatically be activated and read the information on the CDs. When the information on all the CDs in the disc magazine has been read, the unit will automatically stop operation.

Utilisez cet appareil avec la fenêtre complètement fermée
Sinon, des corps étrangers pourraient pénétrer dans l'appareil et encrasser les lentilles dans le lecteur.

Remarque
Quand un chargeur de disques est inséré dans le changeur de CD ou si la touche de réinitialisation de l'autoradio raccordé est enclenchée, l'appareil se met automatiquement en marche et reproduit les CD. Lorsque tous les CD du chargeur ont été reproduits, l'appareil s'arrête automatiquement.

Verwenden Sie das Gerät nur mit vollständig geschlossener Klappe
Halten Sie die Klappe des Geräts stets geschlossen, damit keine Fremdkörper eindringen und die Linsen im Wechsler nicht verschmutzen können.

Hinweis
Wenn Sie ein CD-Magazin in den CD-Wechsler einsetzen oder die Rücksetztaste an der angeschlossenen Audio-Anlage in Ihrem Auto drücken, schaltet sich das Gerät automatisch ein und beginnt, die Daten auf den CDs zu lesen. Nachdem die Informationen auf allen CDs im CD-Wechsler gelesen wurden, stoppt das Gerät automatisch.

Gebruik het toestel met volledig gesloten klep
Anders zou er stof of vuil in het apparaat terecht kunnen komen, met als gevolg vervuilde lenzen en storingen in de werking.

Opmerking
Wanneer een disc-magazijn in de compact disc-wisselaar wordt geplaatst of de terugsteltoets van de uitleesvenster-eenheid wordt ingedrukt, zal het apparaat automatisch ingeschakeld worden, waarna de informatie van de compact discs gelezen wordt. Nadat alle informatie gelezen is, zal het apparaat weer automatisch in de stopstand komen te staan.

Utilizzare l'apparecchio con lo sportello chiuso
Diversamente oggetti estranei potrebbero penetrare nell'apparecchio e contaminare le lenti all'interno del cambia CD.

Nota
Quando un contenitore dischi è inserito nel cambia CD o viene premuto il pulsante di azzeramento dell'autostereo collegato, l'apparecchio si accende automaticamente e legge le informazioni dei dischi. Quando le informazioni di tutti i dischi inseriti nel contenitore dischi sono state lette, l'apparecchio si ferma automaticamente .

Notes on the disc magazine / Remarques sur le chargeur de disques / Hinweise zum CD-Magazin / Opmerkingen betreffende het disc-magazijn / Note sul contenitore dischi

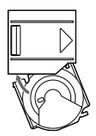
- Do not leave the disc magazine in locations with high temperatures and high humidity such as on a car dashboard or in the rear window where the disc magazine will be subjected to direct sunlight.
- Do not place more than one disc at a time onto one tray, otherwise the changer and the discs may be damaged.
- Do not drop the disc magazine or subject it to a violent shock.

- Ne pas laisser le chargeur de disques dans un endroit très chaud ou très humide comme sur le tableau de bord ou sur la plage arrière d'une voiture où il serait en plein soleil.
- Ne pas insérer plus d'un disque à la fois sur le plateau, sinon le changeur et les disques risquent d'être endommagés.
- Ne pas laisser tomber le chargeur de disques ni le cogner.

- Halten Sie das Magazin von hohen Temperaturen und Feuchtigkeit fern. Lassen Sie es nicht auf dem Armaturenbrett, auf der Heckablage usw. liegen, wo es direktem Sonnenlicht ausgesetzt ist.
- Versuchen Sie nicht, mehr als eine CD in ein Fach einzulegen. Andernfalls können der Wechsler und die CDs beschädigt werden.
- Lassen Sie das Magazin nicht fallen, und schützen Sie es vor Stößen.

- Laat het magazijn niet achter op plaatsen waar dit blootgesteld wordt aan vocht of aan hoge temperaturen, zoals op het dashboard van een auto of op de hoedenplank, waar het magazijn in de volle zon staat.
- Steek niet meer dan één enkele disc in een uitsparing, anders kunnen zowel de CD-wisselaar als de compact discs beschadigd worden.
- Laat het apparaat niet vallen en stel het niet bloot aan hevige trillingen of schokken.

- Non lasciare il contenitore dischi in luoghi con temperature elevate o molto umidi, come sul cruscotto o sul ripiano posteriore di un'auto dove il contenitore potrebbe essere esposto alla luce solare diretta.
- Non inserire più di un disco alla volta in ciascun comparto, diversamente il cambia CD e i dischi saranno danneggiati.
- Non lasciar cadere il contenitore dischi e non sottoporlo a urti violenti.



When the tray comes out

Normally, the trays will not come out of the magazine. However, if they are pulled out of the magazine, it is easy to re-insert them.

With the cut-away portion of the tray facing you, insert the right corner of the tray in the slot, then push in the left corner until it clicks.

Note
Do not insert the tray upside down or in the wrong direction.

Lorsque le plateau sort

En principe, les plateaux ne sortent pas du chargeur. Toutefois, s'ils sortent du chargeur, il est facile de les réinsérer.

Avec la portion découpée du plateau vous faisant face, insérer le coin droit du plateau dans la fente, puis enfoncer le coin gauche jusqu'au déclic.

Remarque
Ne pas insérer le plateau à l'envers ou dans le mauvais sens.

Wenn sich ein Fach gel st hat

Normalerweise können sich die Fächer nicht vom Magazin lösen. Werden sie jedoch aus dem Magazin herausgezogen, lassen sie sich mühelos wieder anbringen.

Hierbei muß die Aussparung des Fachs auf Sie weisen. Setzen Sie dann die rechte Ecke des Fachs in den Einschub ein, und drücken Sie danach die linke Ecke an, bis das Fach mit einem Klicken einrastet.

Hinweis
Versuchen Sie nicht, das Fach mit der falschen Seite nach oben oder verkehrt herum einzusetzen.

Als de houder uitsteekt

Normaal gezien steken de houders niet uit het magazijn. Als ze er toch zouden zijn uitgetrokken, kan u ze er makkelijk weer insteken.

Met de uitsparing in de houder naar u toe gericht, brengt u de rechterhoek van de houder in de gleuf en drukt dan de linkerhoek erin tot u een klik hoort.

Opmerking
De houder niet omgekeerd of in de verkeerde richting inbrengen.

Quando il comparto fuoriesce

Di solito, i comparti non fuoriescono dal contenitore; se ciò dovesse avvenire, è facile reinserirli.

Con la parte del comparto tagliata rivolta in avanti, inserire l'angolo destro del comparto nell'alloggiamento, quindi inserire l'angolo sinistro fino a farlo scattare in posizione.

Nota
Non inserire il vassoio capovolto o nella direzione errata.

Notes on handling discs / Remarques sur la manipulation des disques / Hinweise zum Umgang mit CDs / Opmerkingen bij het omgaan met discs / Note sulla manipolazione dei dischi

A dirty or defective disc may cause sound drop-outs during playback. To enjoy optimum sound, handle the disc as follows.

- **Handle the disc by its edge, and to keep the disc clean, do not touch the unlabeled surface. (fig. A)**
- **Do not stick paper or tape on the disc. (fig. B)**
- **Keep your discs in their cases or disc magazines when not in use. Do not expose discs to direct sunlight or heat sources such as hot air-ducts. Do not leave discs in a car parked in direct sunlight where there can be a considerable rise in the temperature inside the car. (fig. C)**
- **Before playing, clean the discs with an optional cleaning cloth. Wipe each disc in the direction of the arrows. (fig. D)**
  Do not use solvents such as benzine, thinner, commercially available cleaners or antistatic spray intended for analog discs.
- **Discs with special shapes (heart-shaped discs, octagonal discs etc.) cannot be played on this unit. Attempting to do so may damage the unit. Do not use such discs.**

Notes on discs

If you use the discs explained below, the sticky residue can cause the disc to stop spinning and may cause malfunction or ruin your discs.
Do not use second-hand or rental CDs that have a sticky residue on the surface (for example from peeled-off stickers or from ink, or glue leaking from under the stickers).

- **There are paste residue. Ink is sticky. (fig. E)**
  Do not use rental CDs with old labels that are beginning to peel off.
- **Stickers that are beginning to peel away, leaving a sticky residue. (fig. F)**
  Do not use your discs with labels or stickers attached.
- **Labels are attached. (fig. G)**

Notes on CD-R discs

- **You can play CD-Rs (recordable CDs) designed for audio use on this unit. (fig. H)**
- **Some CD-Rs (depending on the equipment used for its recording or the condition of the disc) may not play on this unit.**
- **You cannot play a CD-R that is not finalized*.**

** A process necessary for a recorded CD-R disc to be played on the audio CD player.*

Remarques sur la manipulation des disques

Un disque sale ou défectueux peut provoquer des pertes de son à la lecture. Manipuler le disque comme suit pour obtenir un son optimal.

- **Manipuler le disque par son arête et le maintenir dans un état propre, ne pas le toucher sur la surface non imprimée. (fig. A)**
- **Ne pas coller de papier ou de bande adhésive sur le disque. (fig. B)**
- **Conservez vos disques dans leurs boîtiers ou des pochettes de rangement lorsqu'ils ne sont pas utilisés.**
  Ne pas laisser les disques en plein soleil ou près d'une source de chaleur comme des conduits d'air chaud. Ne pas laisser les disques dans une voiture garée en plein soleil car la température de l'habitacle risque d'augmenter considérablement. (fig. C)
- **Avant la lecture, essuyer les disques avec un chiffon de nettoyage en option. Essuyer chaque disque dans le sens des flèches. (fig. D)**
  Ne pas utiliser de solvants tels que de la benzine, du diluant, des produits de nettoyage vendus dans le commerce ou de vaporisateurs anti-statiques destinés aux disques analogiques.
- **Il n'est pas possible d'utiliser les disques de formes spéciales (en forme de cœur ou octogonaux, etc.) avec cet appareil. Vous risquez d'endommager l'appareil. N'essayez jamais de lire ces disques.**

Remarques sur les disques

Si vous utilisez les disques décrits ci-dessous, le résidu adhésif risque de provoquer l'arrêt de la rotation du disque et d'entraîner un dysfonctionnement ou d'endommager vos disques.
N'utilisez pas de CD de seconde main ou de location qui présentent des résidus adhésifs à la surface (par exemple d'étiquettes décollées ou d'encre, de colle dépassant de l'étiquette).

- **Résidus de colle. L'encre colle. (fig. E)**
  N'utilisez pas de CD de location avec d'anciennes étiquettes qui commencent à se décoller.
- **Les étiquettes qui commencent à se décoller laissent des résidus adhésifs. (fig. F)**
  N'utilisez pas vos disques avec des étiquettes ou des autocollants apposés dessus.
- **Les étiquettes sont fixées. (fig. G)**

Remarques sur les disques CD-R

- **Vous pouvez écouter avec cet appareil des CD-R (CD enregistrables) conçus pour une utilisation audio. (fig. H)**
- **Certains CD-R (en fonction des conditions de l'équipement d'enregistrement ou du disque) risquent de ne pas être lus avec cet appareil.**
- **Vous ne pouvez pas lire de disques CD-R non finalisés*.**

** Un processus nécessaire à la lecture des disques CD-R enregistrés sur le lecteur de CD audio.*

Hinweise zum Umgang mit CDs

Eine verschmutzte oder beschädigte CD kann Tonaussetzer verursachen. Um optimale Klangqualität sicherzustellen, beachten Sie folgendes:

- **Damit die CD sauber bleibt, fassen Sie sie immer am Rand an, und berühren Sie nicht die Seite ohne Beschriftung. (Abb. A)**
- **Kleben Sie weder Papier noch Klebeband auf die CD. (Abb. B)**
- **Bewahren Sie CDs in ihrer Hülle oder in den CD-Magazinen auf, wenn sie nicht abgespielt werden.**
  Schützen Sie die CD vor Sonnenlicht und Wärmequellen wie Warmluftauslässen. Lassen Sie sie nicht in einem Auto liegen, das direkt in der Sonne geparkt ist, da die Temperatur im Wageninneren sehr hoch ansteigen kann. (Abb. C)
- **Vor dem Abspielen reinigen Sie die CD mit einem im Handel erhältlichen Reinigungstuch, indem Sie in Pfeilrichtung über die Oberfläche wischen. (Abb. D)**
  Lösungsmittel wie Benzin, Verdünner sowie für Analogplatten bestimmte Reinigungsmittel und Antistatiksprays dürfen nicht verwendet werden.
- **CDs mit außergewöhnlichen Formen (z. B. herzförmige oder achteckige CDs) können mit diesem Gerät nicht wiedergegeben werden. Falls Sie es doch versuchen, kann das Gerät beschädigt werden. Verwenden Sie solche CDs nicht.**

Hinweise zu CDs

Wenn Sie die unten aufgeführten CDs verwenden, können Klebstoffrückstände dazu führen, daß die CD sich nicht mehr dreht, oder Fehlfunktionen oder Schäden an der CD verursachen.
Verwenden Sie keine gebraucht gekauften oder Leih-CDs mit klebrigen Rückständen auf der Oberfläche (z. B. von abgelösten Aufklebern, von Tinte oder von Klebstoff, der unter den Aufklebern hervorquillt).

- **Klebstoffrückstände. Tinte klebt. (Abb. E)**
  Verwenden Sie keine Leih-CDs mit alten Etiketten, die sich abzulösen beginnen.
- **Aufkleber, die sich zu lösen beginnen und Klebstoffrückstände hinterlassen. (Abb. F)**
  Verwenden Sie keine CDs, an denen Etiketten oder Aufkleber angebracht sind.
- **Angebrachte Etiketten. (Abb. G)**

Hinweise zu CD-Rs

- **Mit diesem Gerät können Sie CD-Rs (beschreibbare CDs) wiedergeben lassen, die für den Einsatz als Tondatenträger konzipiert sind. (Abb. H)**
- **Je nach dem Aufnahmegerät, mit dem die CD-R bespielt wurde, oder dem Zustand der CD-R selbst können einige CD-Rs mit diesem Gerät möglicherweise nicht wiedergegeben werden.**
- **Eine noch nicht abgeschlossene CD-R kann nicht wiedergegeben werden*.**

** Damit eine bespielte CD-R auf einem Audio-CD-Player wiedergegeben werden kann, ist ein spezieller Prozeß erforderlich.*

Opmerkingen bij het omgaan met discs

Bij het afspelen van een vuile of beschadigde disc kan het geluid regelmatig wegvallen. Voor het verzekeren van een goede geluidsweergave dient u als volgt met discs om te gaan.

- **Pak een compact disc altijd bij de rand vast, houd hem proper en raak het oppervlak (behalve het label) niet aan. (afb. A)**
- **Plak geen papier of plakband op een compact disc. (afb. B)**
- **Bewaar uw discs in hun doosje of disc-magazijn wanneer u ze niet gebruikt.**
  Stel compact discs niet bloot aan direkt zonlicht of warmeluchtkanalen. Laat ze niet liggen in een geparkeerde auto in de volle zon, aangezien de temperatuur hierin bijzonder hoog kan oplopen. (afb. C)
- **Veeg een compact disc voor het afspelen schoon, bij voorkeur met het los verkrijgbare speciale reinigingsdoekje. Veeg licht over het oppervlak van de compact disc, van het midden naar de rand. (afb. D)**
  Gebruik voor het reinigen geen oplosmiddelen als benzine of thinner, noch de in de handel verkrijgbare vloeistoffen of antistatische spray voor het reinigen van konventionele grammofoonplaten.
- **Discs met speciale vormen (hartvormige discs, achthoekige discs enz.) kunnen niet met dit toestel worden afgespeeld. Indien u dat toch doet, kan het toestel worden beschadigd. Gebruik geen dergelijke discs.**

Opmerkingen bij discs

Indien u de discs behandelt zoals hieronder beschreven, kunnen kleverige resten de disc doen stoppen waardoor het toestel defect of uw discs beschadigd kunnen raken.
Gebruik geen gebruikte of gehuurde CD's met kleverig oppervlak (bijvoorbeeld afkomstig van stickers of inkt of lijm die van onder de stickers komt).

- **Lijmresten. Kleverige inkt. (afb. E)**
  Gebruik geen gehuurde CD's met oude labels die loskomen.
- **Stickers die loskomen laten kleverige resten achter. (afb. F)**
  Gebruik geen discs waarop stickers zijn gekleefd.
- **Vastgekleefde labels. (afb. G)**

Opmerkingen bij CD-R discs

- **Audio CD-R's (opneembare CD's) kunnen met dit toestel worden afgespeeld. (fig. H)**
- **Sommige CD-R's (afhankelijk van de opname-apparatuur of de staat van de disc) kunnen niet met dit toestel worden afgespeeld.**
- **U kunt geen CD-R afspelen die niet is gefinaliseerd*.**

** Proces dat nodig is om een opgenomen CD-R disc af te spelen met een CD-speler.*

Note sui dischi

I residui di colla presenti sui dischi indicati di seguito potrebbero causare l'arresto del disco stesso e problemi di funzionamento dell'apparecchio o danneggiare i dischi stessi.
Non utilizzare dischi di seconda mano o presi a noleggio che presentano residui di colla sulla superficie, ad esempio residui di etichette o inchiostro rimossi oppure residui di colla che fuoriescono dalle etichette.

- **Residui di colla. Residui di inchiostro. (fig. E)**
  Non utilizzare dischi presi a noleggio con etichette vecchie che cominciano a staccarsi.
- **Etichette che cominciano a staccarsi, lasciando residui di colla. (fig. F)**
  Non utilizzare dischi su cui siano applicati etichette o adesivi.
- **Etichette applicate. (fig. G)**

Note sui CD-R

- **Con il presente apparecchio è possibile riprodurre CD-R (CD registrabili) progettati per l'utilizzo audio. (fig. H)**
- **In base alle condizioni dell'apparecchio di registrazione o del CD-R stesso, alcuni CD-R potrebbero non essere riprodotti su questo apparecchio.**
- **Non è possibile riprodurre CD-R non finalizzati*.**

** Operazione necessaria per la riproduzione di un CD-R registrato su lettore CD audio.*

A

This way
Oui
Richtig
Juist
Così

B

Not this way
Non
Falsch
Fout
Non così

C

Not this way
Non
Falsch
Fout
Non così

D

This way
Oui
Richtig
Juist
Così

E

F

G

H

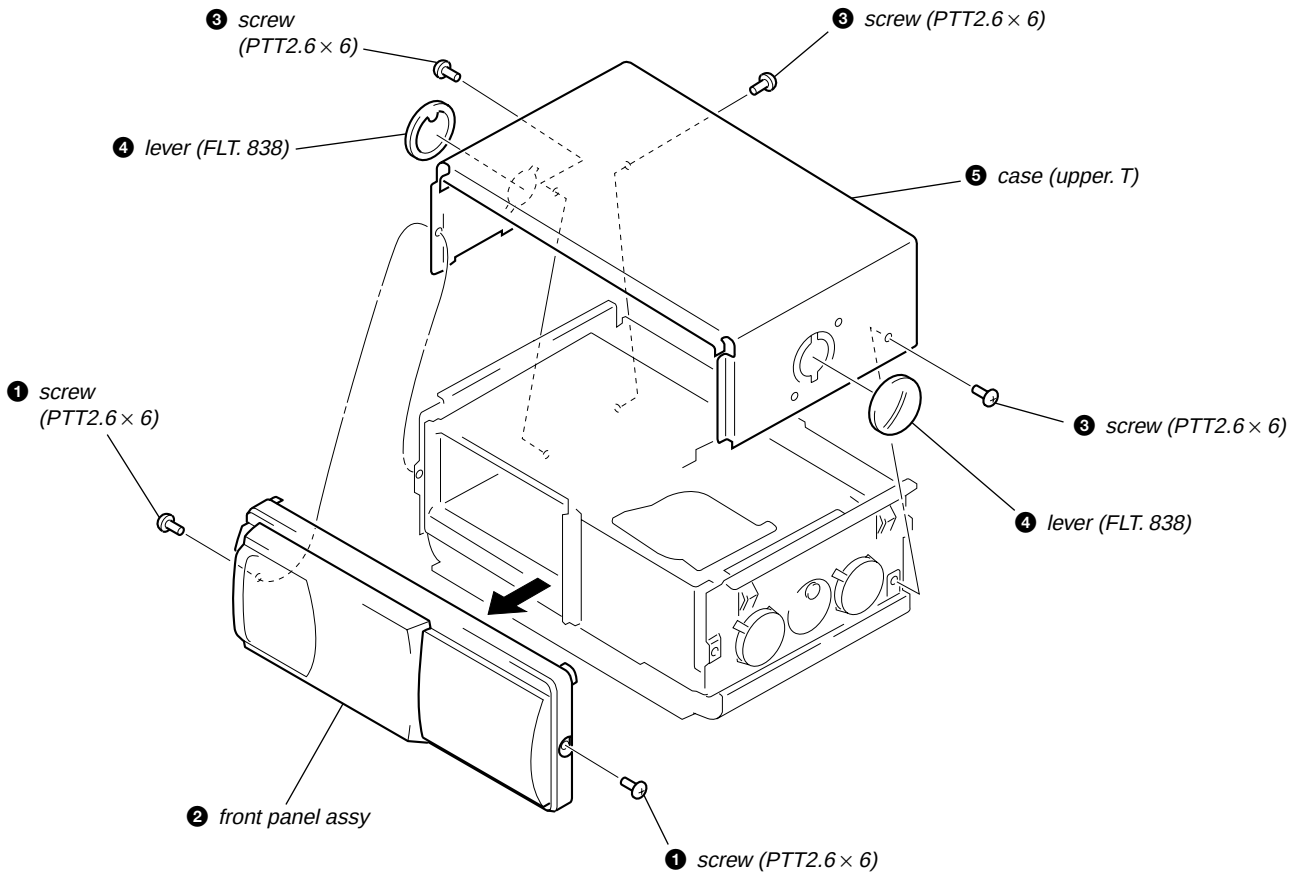
Look for this mark to distinguish CD-Rs for audio use.
Ce symbole permet de distinguer les CD-R conçus pour une utilisation audio.
Für den Einsatz als Tondatenträger konzipierte CD-Rs sind mit dieser Markierung gekennzeichnet.
Audio CD-R's zijn hieraan te herkennen.
Ricercare questo simbolo per distinguere i CD-R per utilizzo audio.

This mark denotes that a disc is not for audio use.
Ce symbole indique qu'un disque n'est pas conçu pour une utilisation audio.
Nicht für den Einsatz als Tondatenträger geeignete CD-Rs sind mit dieser Markierung gekennzeichnet.
Dit geeft aan dat een disc niet geschikt is voor audiotoepassingen.
Questo simbolo indica che il disco non è destinato all'utilizzo audio.

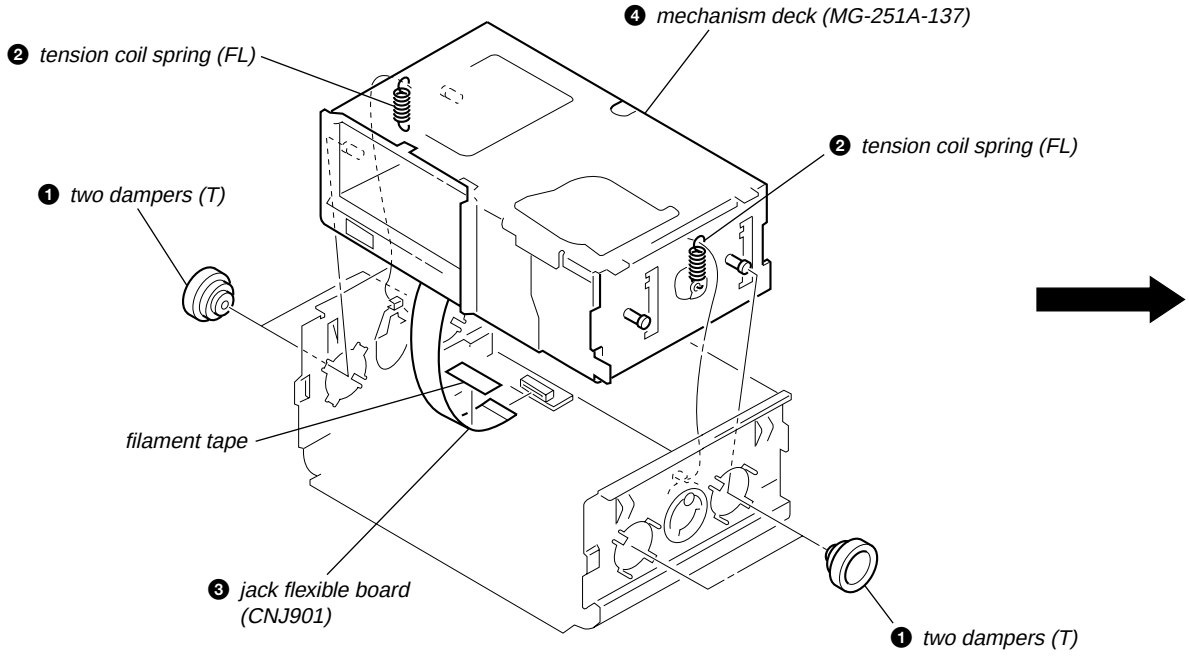
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

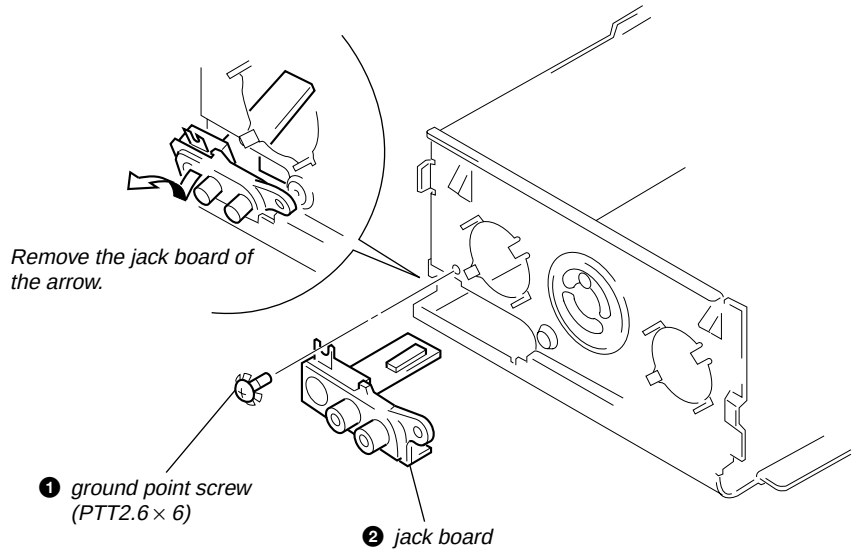
CASE (UPPER. T), FRONT PANEL ASSY


❸ screw (PTT2.6× 6)
❸ screw (PTT2.6× 6)
❹ lever (FLT. 838)
❺ case (upper. T)
❶ screw (PTT2.6× 6)
❸ screw (PTT2.6× 6)
❹ lever (FLT. 838)
❷ front panel assy
❶ screw (PTT2.6× 6)

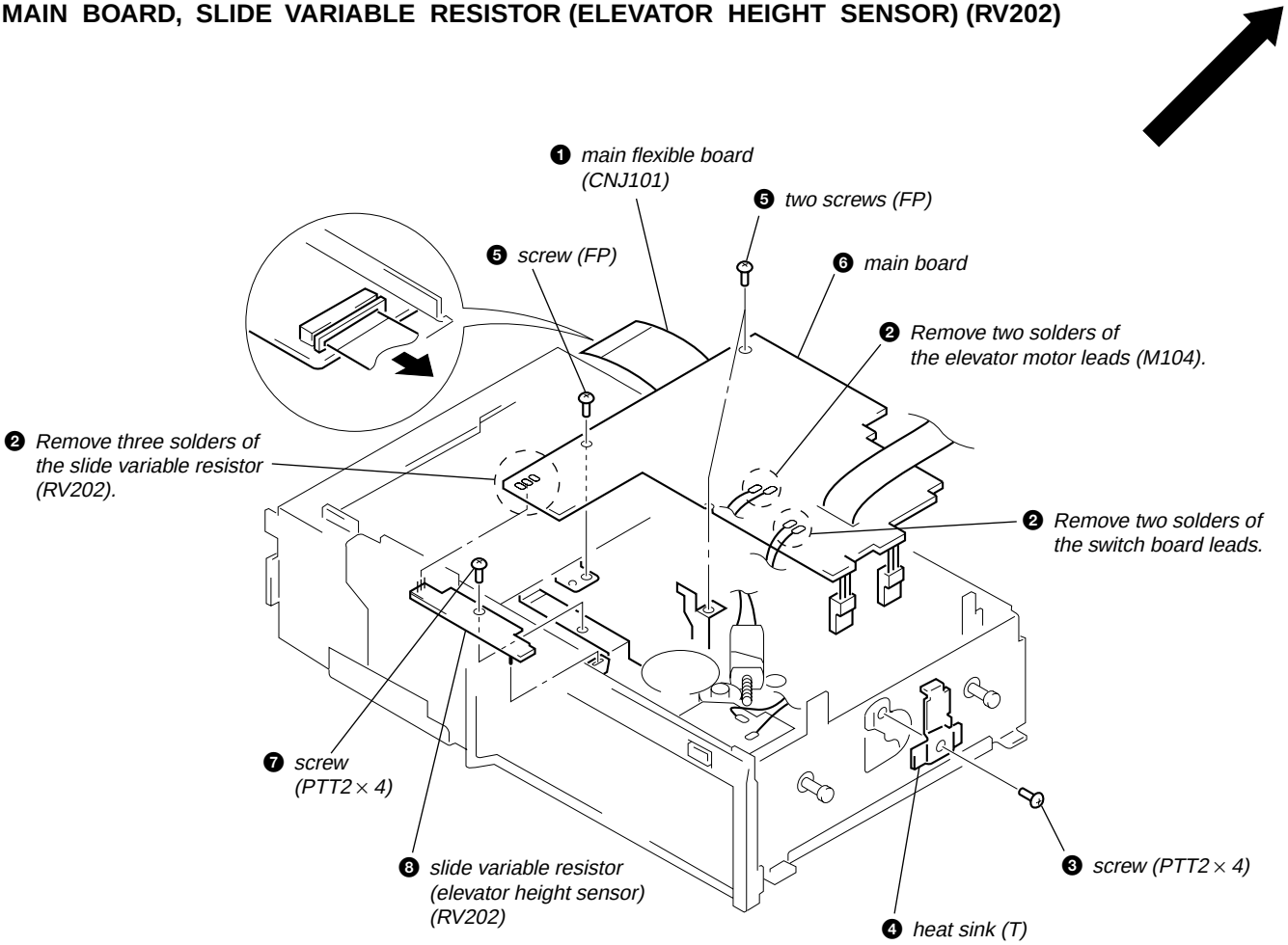
MECHANISM DECK (MG-251A-137)


❹ mechanism deck (MG-251A-137)
❷ tension coil spring (FL)
❷ tension coil spring (FL)
❶ two dampers (T)
filament tape
❸ jack flexible board (CNJ901)
❶ two dampers (T)

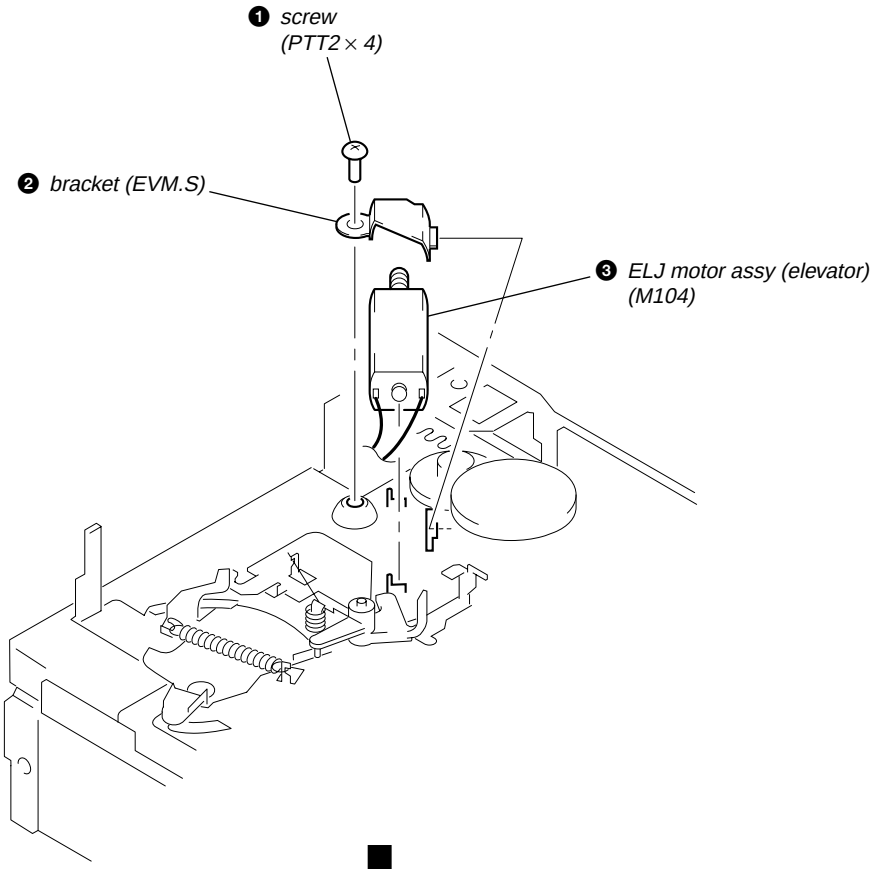
JACK BOARD



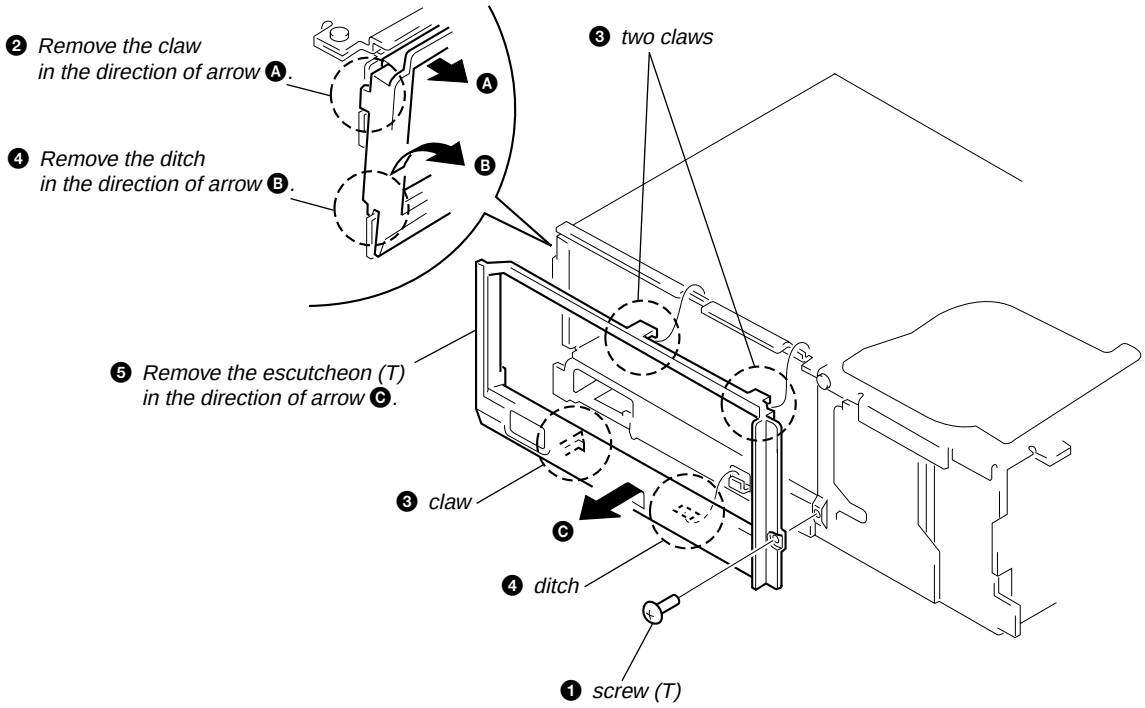
MAIN BOARD, SLIDE VARIABLE RESISTOR (ELEVATOR HEIGHT SENSOR) (RV202)


❶ main flexible board (CNJ101)
❺ two screws (FP)
❺ screw (FP)
❻ main board
❷ Remove two solders of the elevator motor leads (M104).
❷ Remove three solders of the slide variable resistor (RV202).
❷ Remove two solders of the switch board leads.
❼ screw (PTT2 × 4)
❽ slide variable resistor (elevator height sensor) (RV202)
❸ screw (PTT2 × 4)
❹ heat sink (T)

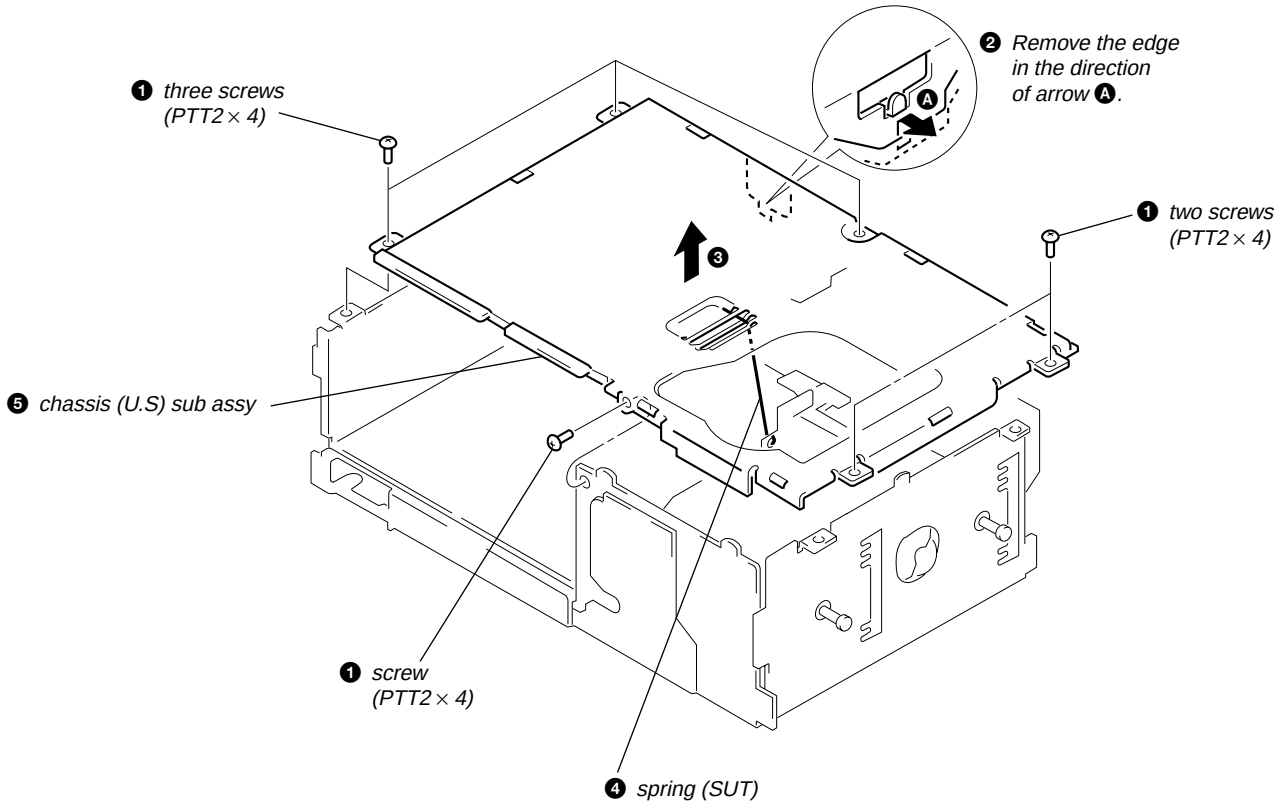
ELJ MOTOR ASSY (ELEVATOR) (M104)



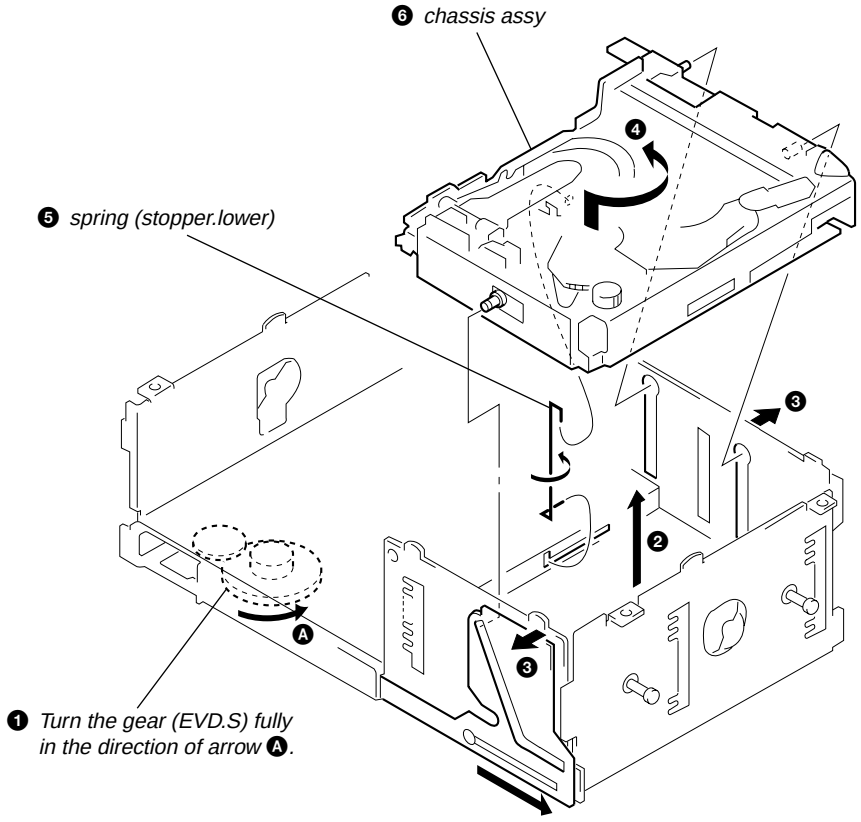
ESCUTCHEON (T)


❷ Remove the claw
in the direction of arrow Ⓐ.
❸ two claws
❹ Remove the ditch
in the direction of arrow Ⓑ.
❺ Remove the escutcheon (T)
in the direction of arrow Ⓒ.
❸ claw
❹ ditch
❶ screw (T)

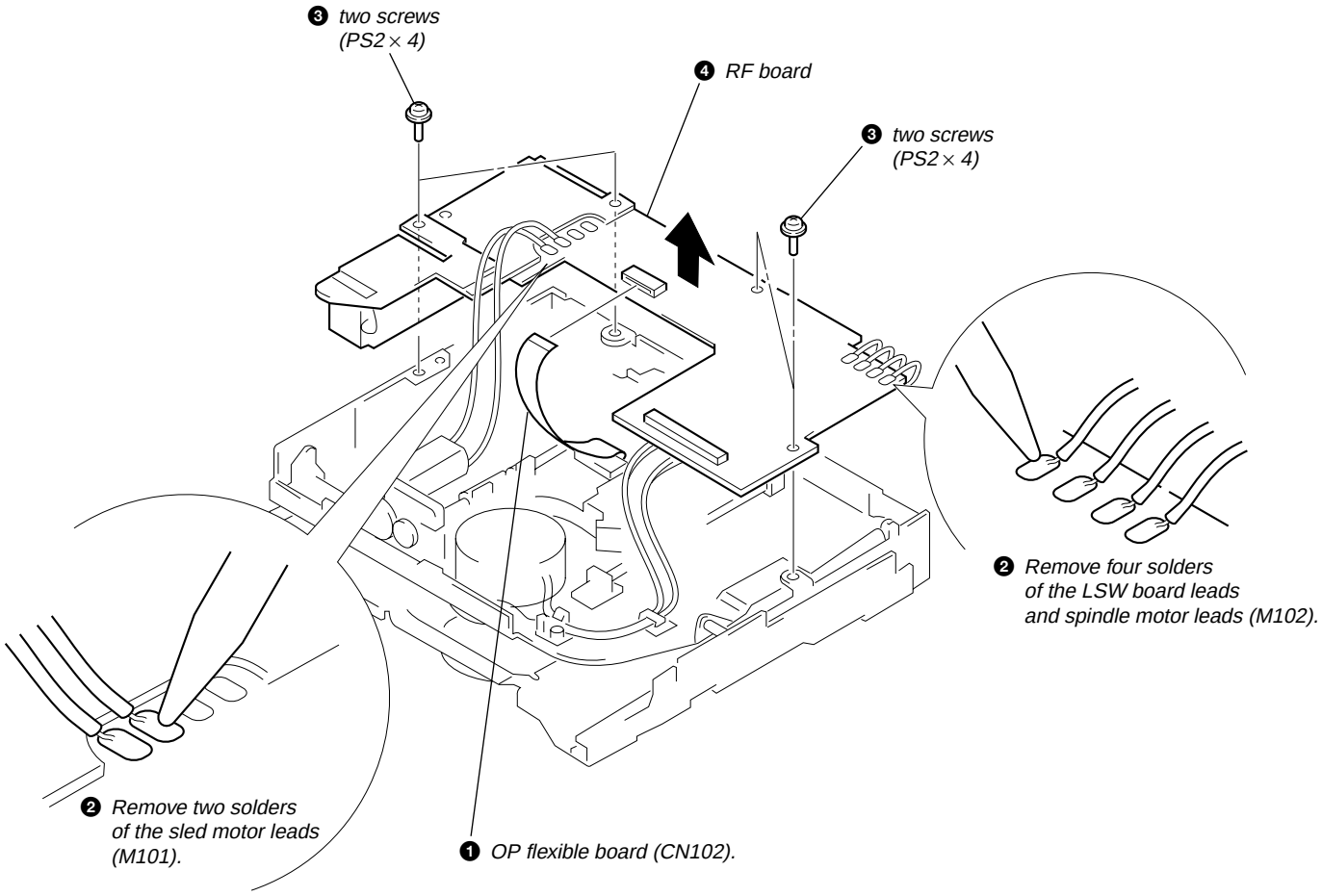
CHASSIS (U.S) SUB ASSY


❶ three screws (PTT2 × 4)
❷ Remove the edge in the direction of arrow Ⓐ.
❶ two screws (PTT2 × 4)
❺ chassis (U.S) sub assy
❶ screw (PTT2 × 4)
❹ spring (SUT)

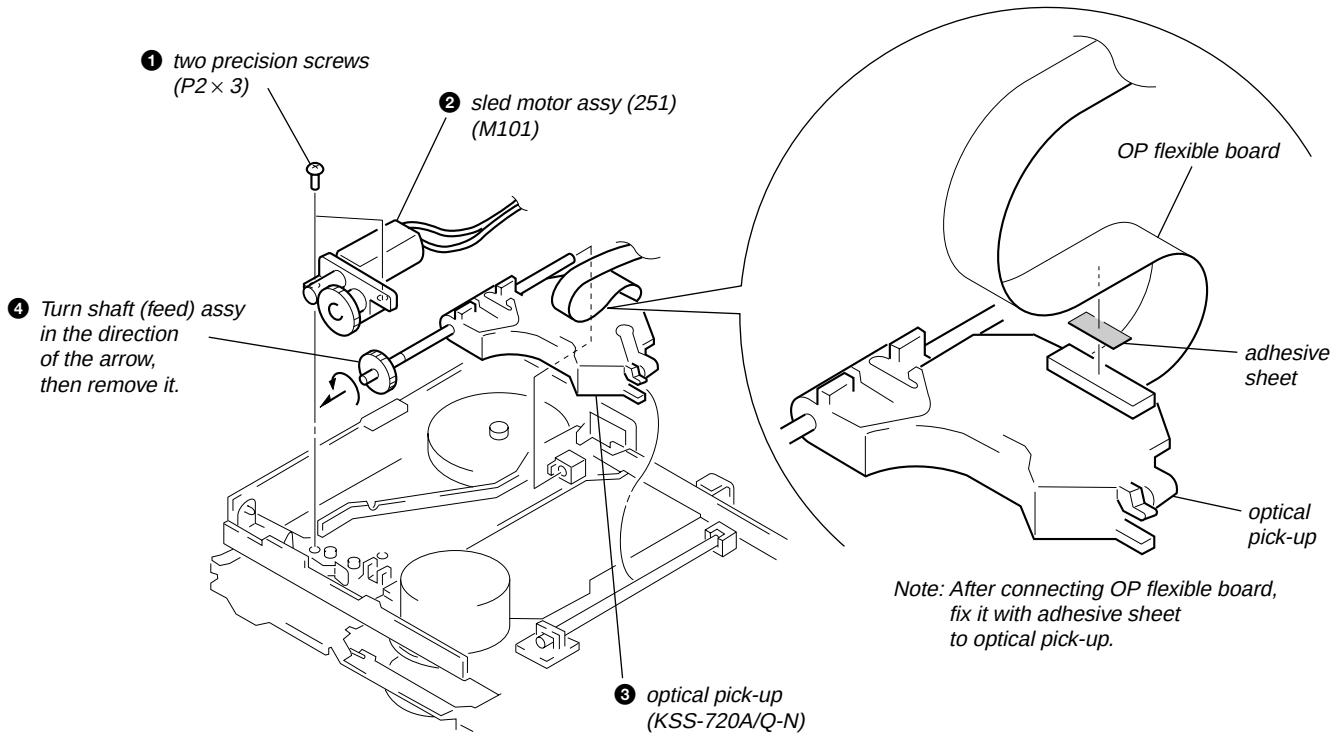
CHASSIS ASSY



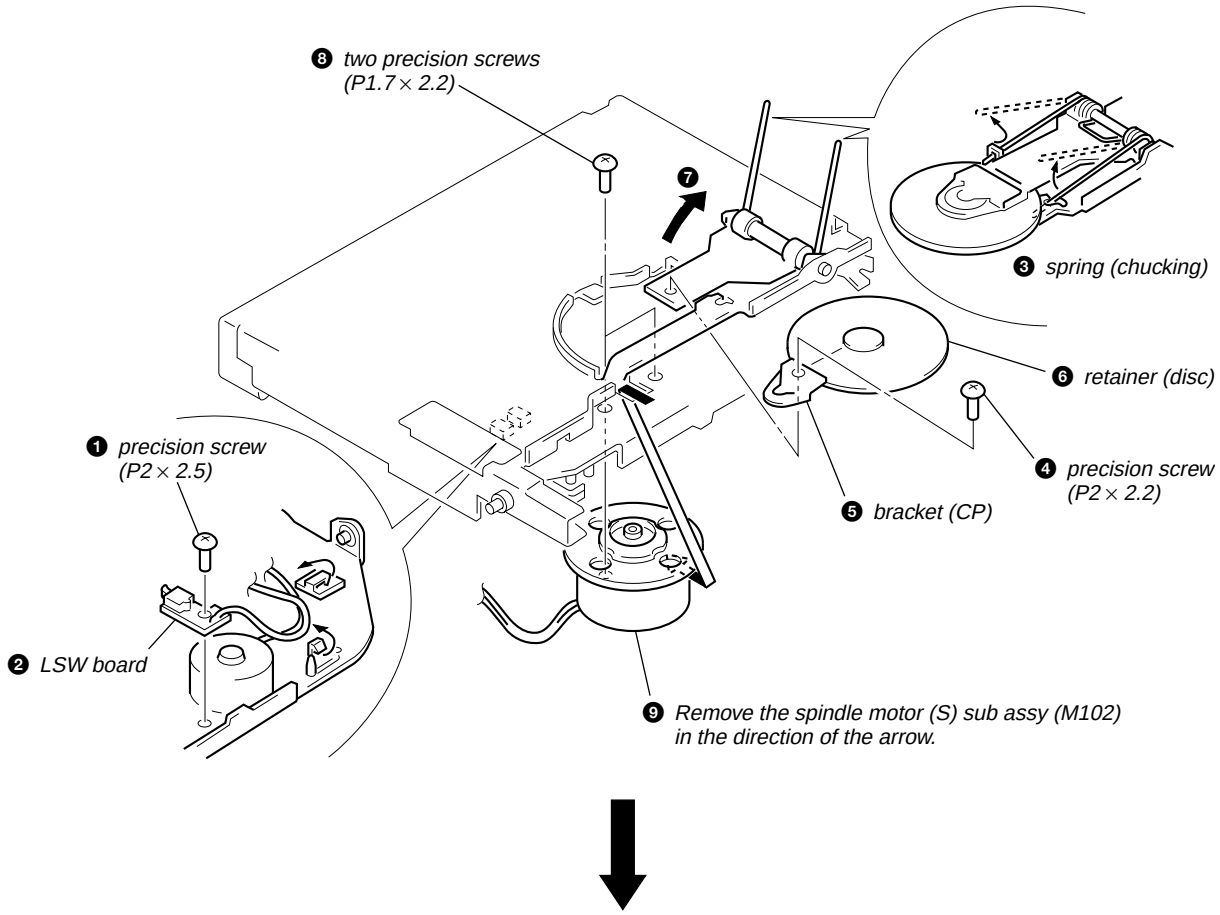
RF BOARD


❸ two screws (PS2 × 4)
❹ RF board
❸ two screws (PS2 × 4)
❷ Remove four solders of the LSW board leads and spindle motor leads (M102).
❷ Remove two solders of the sled motor leads (M101).
❶ OP flexible board (CN102).

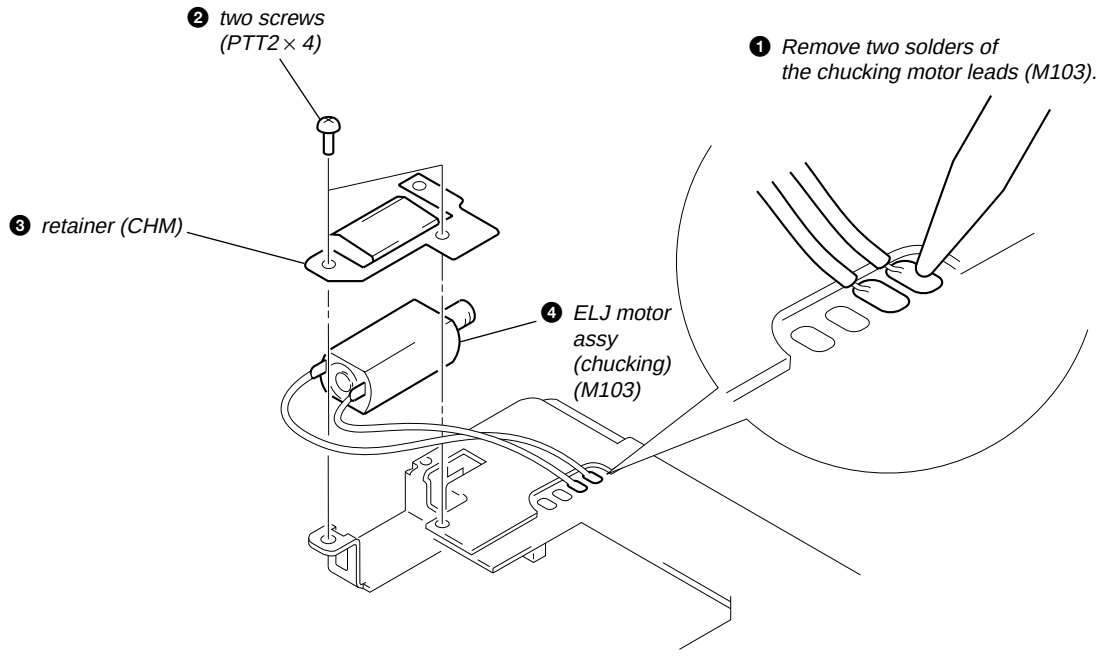
SLED MOTOR ASSY (251) (M101), OPTICAL PICK-UP (KSS-720A/Q-N)


❶ two precision screws (P2 × 3)
❷ sled motor assy (251) (M101)
❹ Turn shaft (feed) assy in the direction of the arrow, then remove it.
❸ optical pick-up (KSS-720A/Q-N)
OP flexible board
adhesive sheet
optical pick-up
Note: After connecting OP flexible board, fix it with adhesive sheet to optical pick-up.

LSW BOARD, SPINDLE MOTOR (S) SUB ASSY (M102)


❽ two precision screws (P1.7 × 2.2)
❼
❸ spring (chucking)
❻ retainer (disc)
❹ precision screw (P2 × 2.2)
❺ bracket (CP)
❶ precision screw (P2 × 2.5)
❷ LSW board
❾ Remove the spindle motor (S) sub assy (M102) in the direction of the arrow.

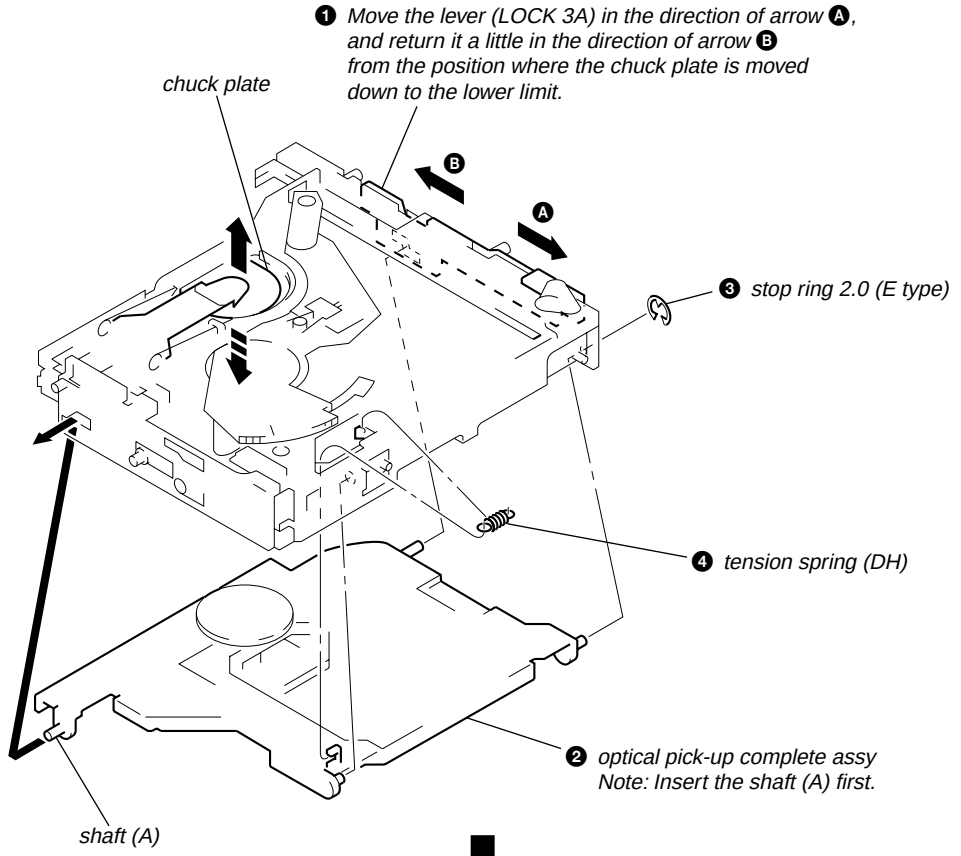
ELJ MOTOR ASSY (CHUCKING) (M103)



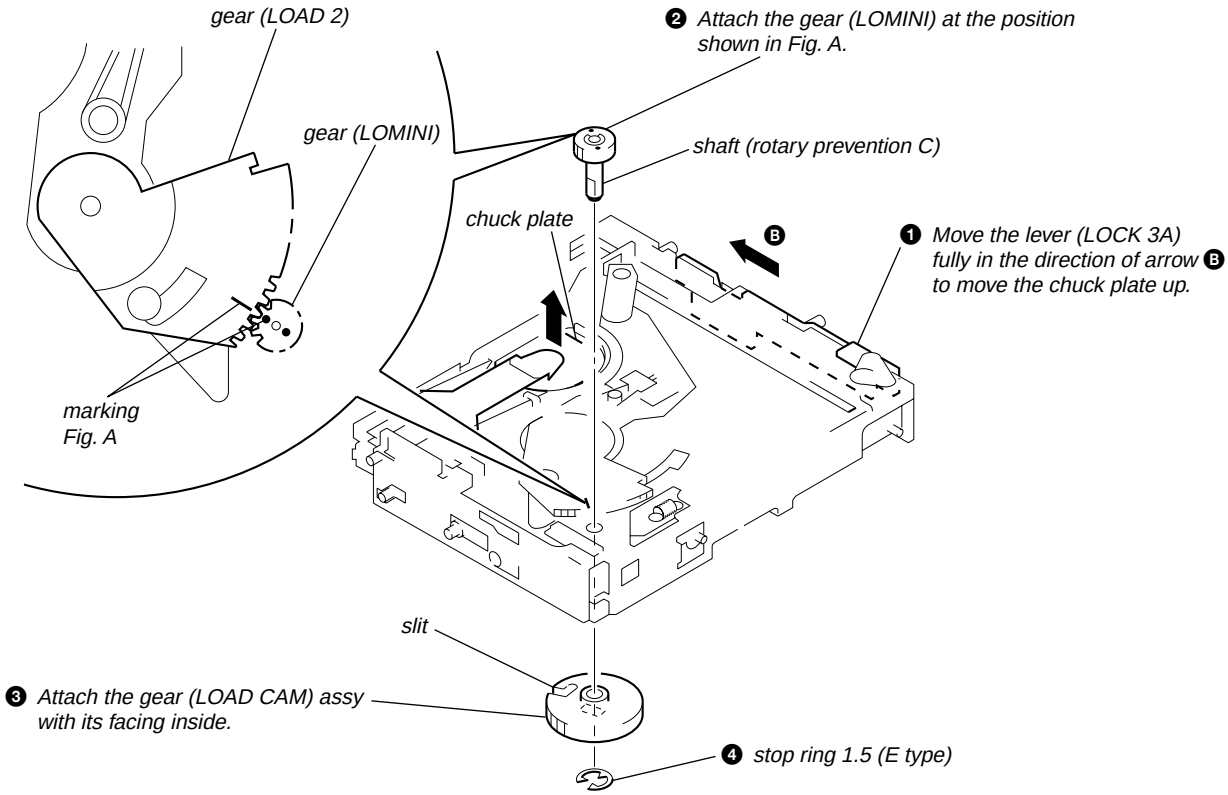
SECTION 3
MECHANISM DECK ASSEMBLY

Note: Follow the assembly procedure in the numerical order given.

OPTICAL PICK-UP COMPLETE ASSY

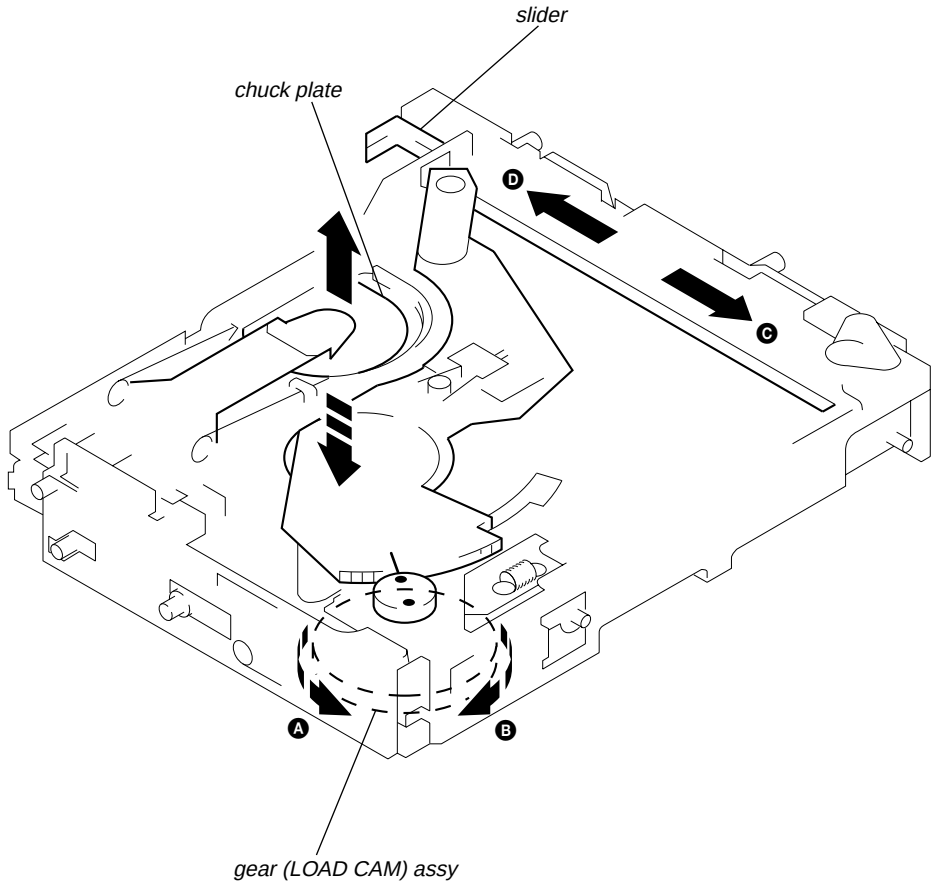

❶ Move the lever (LOCK 3A) in the direction of arrow Ⓐ, and return it a little in the direction of arrow Ⓑ from the position where the chuck plate is moved down to the lower limit.
chuck plate
Ⓑ
Ⓐ
❸ stop ring 2.0 (E type)
❹ tension spring (DH)
❷ optical pick-up complete assy
Note: Insert the shaft (A) first.
shaft (A)

GEAR (LOMINI)/(LOAD CAM) ASSY


gear (LOAD 2)
gear (LOMINI)
marking
Fig. A
❷ Attach the gear (LOMINI) at the position shown in Fig. A.
shaft (rotary prevention C)
chuck plate
Ⓑ
❶ Move the lever (LOCK 3A) fully in the direction of arrow Ⓑ to move the chuck plate up.
slit
❸ Attach the gear (LOAD CAM) assy with its facing inside.
❹ stop ring 1.5 (E type)

OPERATION CHECK

❶ *Confirm that the slider moves in the direction of arrow Ⓒ to move down the chuck plate if the gear (LOAD CAM) is rotated in the direction of arrow Ⓐ or the chuck plate moves up and the slider moves in the direction of arrow Ⓓ if the gear is rotated in the direction of arrow Ⓑ.*

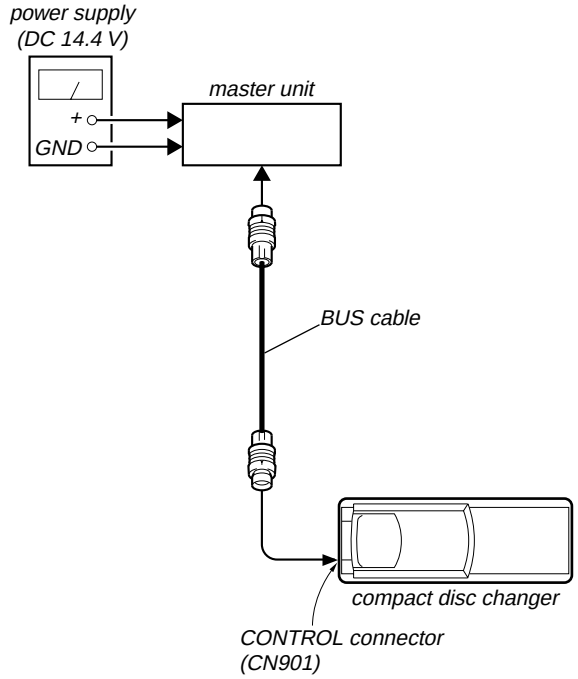


SECTION 4
MECHANICAL ADJUSTMENT

• Elevator Height (Address) Adjustment

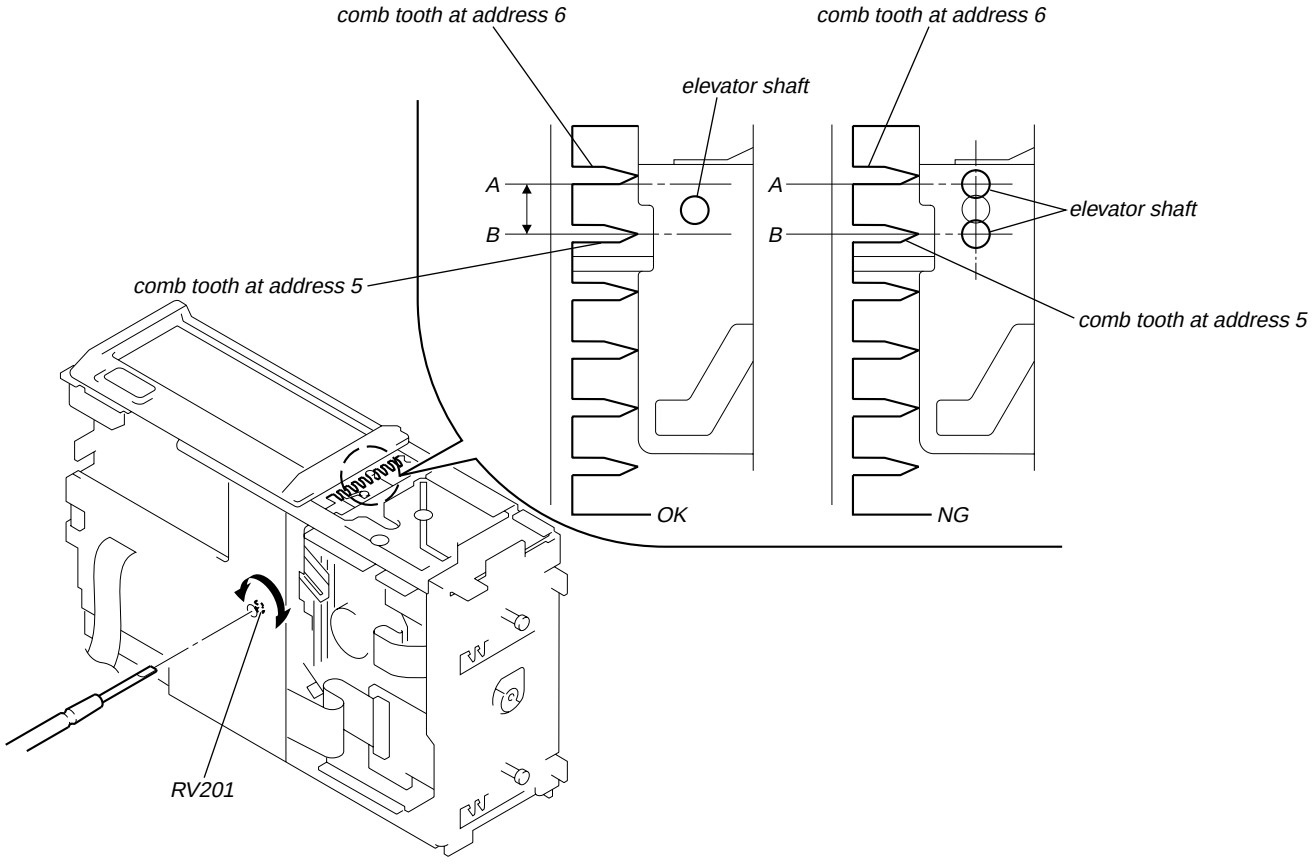
Note: This adjustments is necessary when the system controller (IC201), variable resistor (RV201), slider (R), slider (L), or chassis (ELV) was replaced for any repair.

Connection:



Adjustment Method:

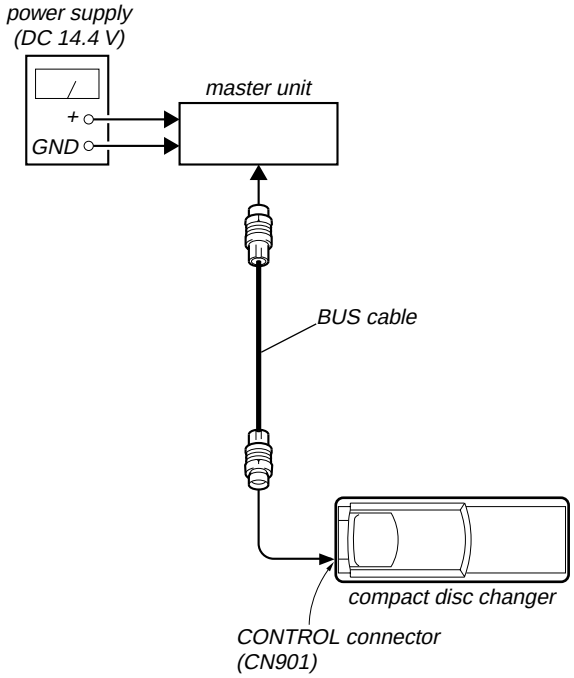
1. Connect this set to the master unit (e.g. MDX-C7970/C7970R), load a disc magazine, and place the set vertically as shown below.
2. Connect the regulated power supply to the master unit, and turn the power on.
3. Press the DISC button on the master unit and select DISC 5.
4. At this time, if the elevator shaft does not position between comb teeth A and B at addresses 5 and 6 as shown below, adjust the following.
5. Press repeatedly the DISC + and – buttons on the master unit so that the elevator shafts moves from address 6 to address 5, or from 5 to 6. At this time, adjust RV201 on the main board so that the elevator shaft positions smoothly between comb teeth A and B.
6. Further, place the set horizontally and make same adjustment as mentioned above.
7. After adjustment at addresses 5 to 6 is finished, check all operations from addresses 1 to 10 with the set placed vertically and horizontally respectively to confirm that the elevator shaft positions in a range between comb teeth A to B.



SECTION 5
ELECTRICAL CHECK

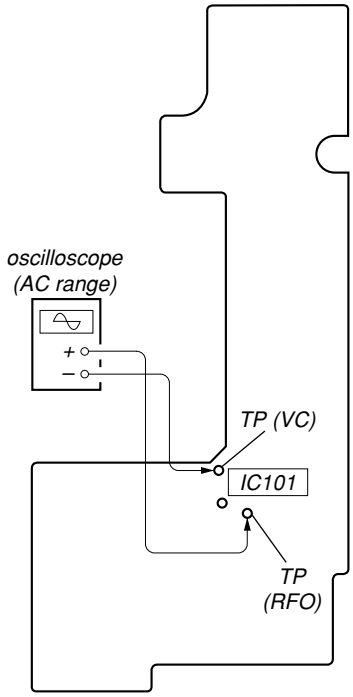
Note:
1. This check is performed with the set placed horizontally.
2. Power supply voltage: DC14.4 V (more than 3 A).
3. Be sure to use the disc "YEDS-18" parts code: 3-702-101-01, but only when indicated.

Connection:



Focus Bias Check

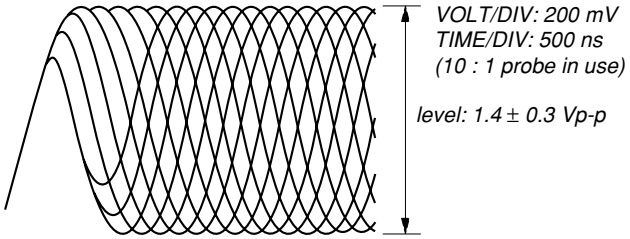
Connection:
– RF Board (Component Side) –



Procedure:
1. Connect the oscilloscope to TP (RFO) and TP (VC) on the RF board.
2. Put the set into play mode by loading the disc (YEDS-18).
3. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note:
Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

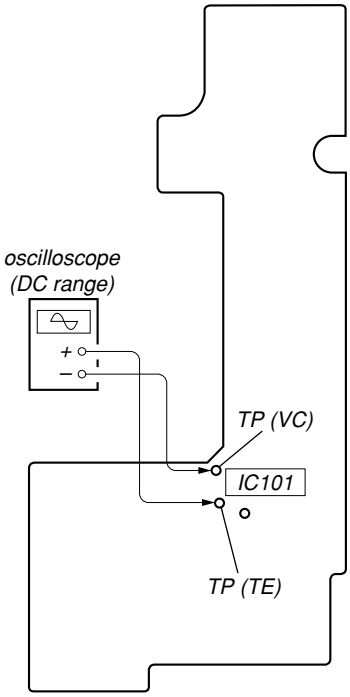
RF signal waveform



When observing the eye pattern, set the oscilloscope to AC range and raise the vertical sensitivity so that it may be easily seen.

Tracking Offset Check

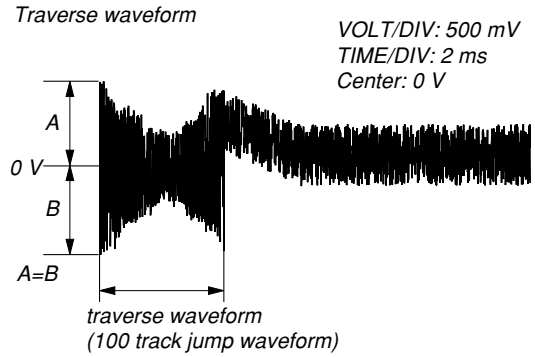
Connection:
– RF Board (Component Side) –



Procedure:

1. Connect the oscilloscope to TP (TE) and TP (VC) on the RF board.
2. Put the set into play mode by loading the disc (YEDS-18).
3. Press the ⏮ , ⏭ buttons on the master unit, and check the traverse waveform*.
4. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V dc, and check this level.

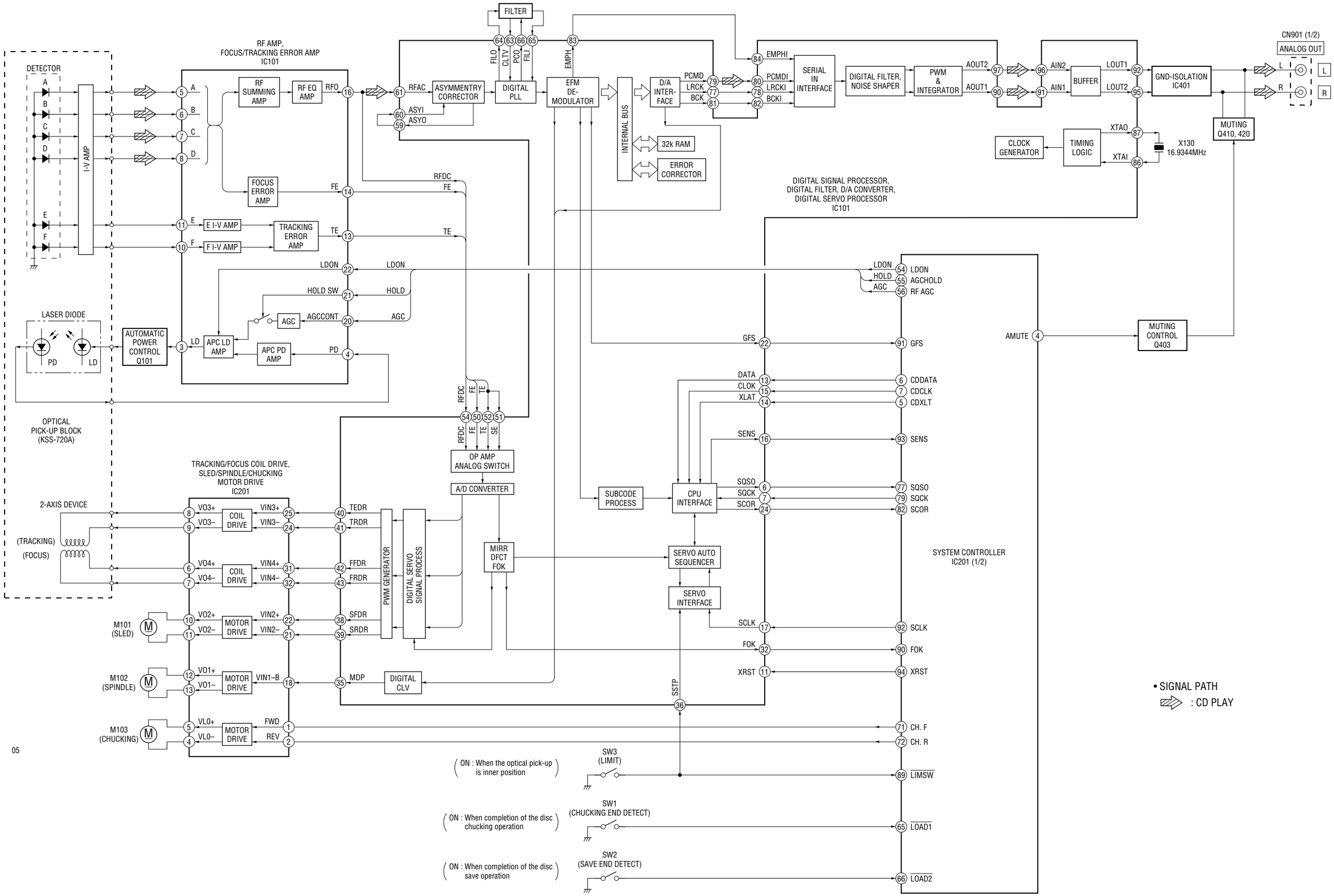
* Traverse waveform: This is the tracking error wave form appears when crossing the track.



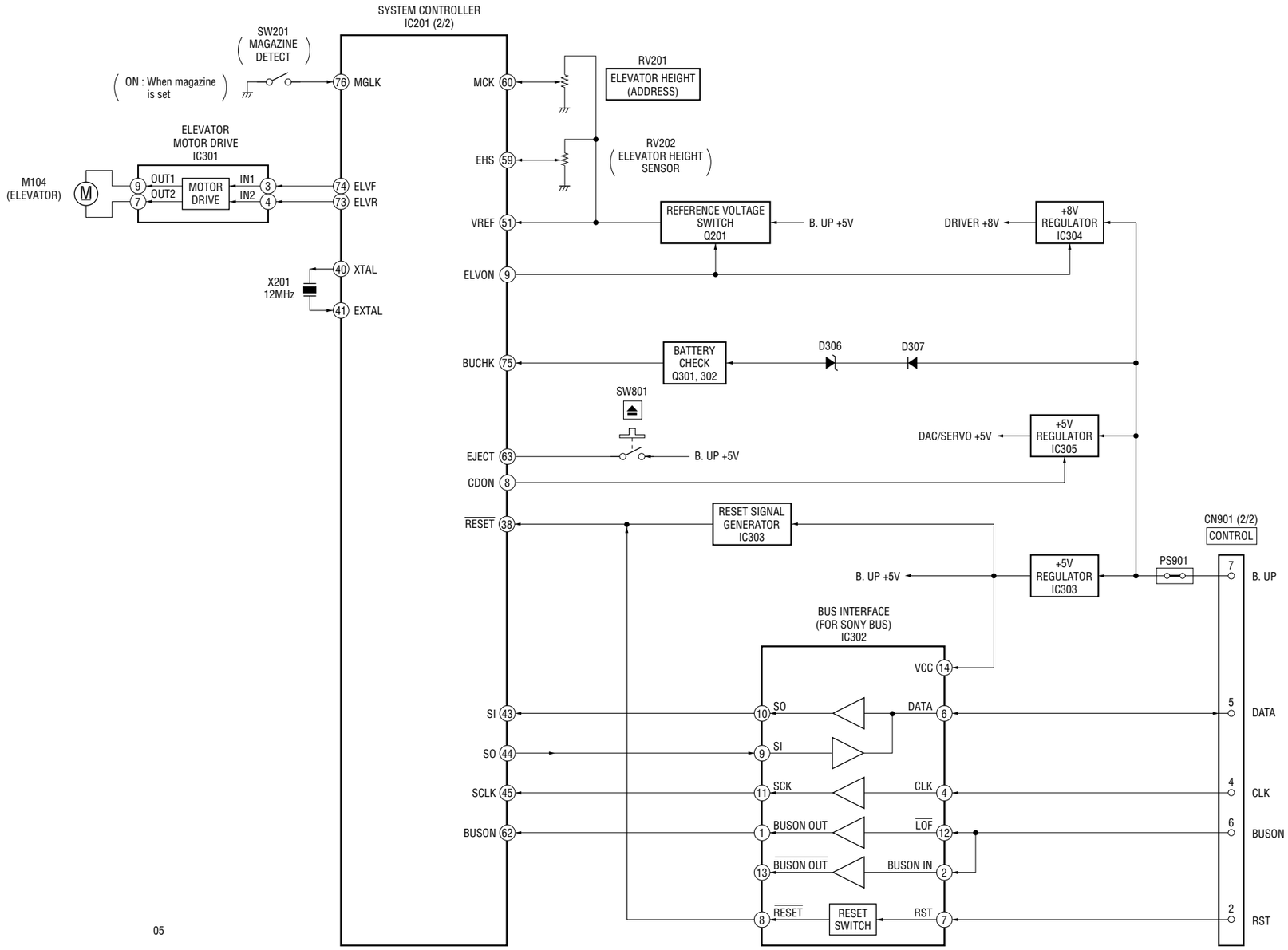
MEMO

SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAM – MAIN Section –



6-2. BLOCK DIAGRAM – BUS CONTROL/POWER SUPPLY Section –



05

6-3. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Boards:

- ⚬——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

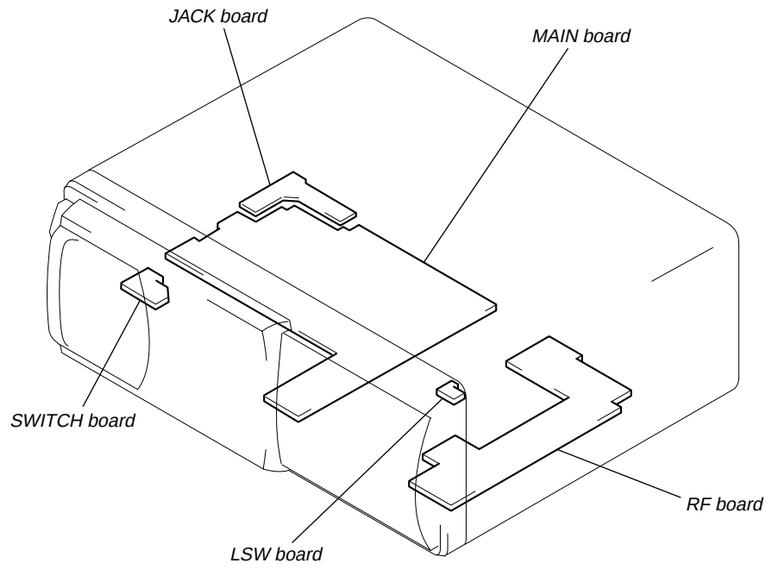
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- ▬ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
  ✻ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD PLAY

- **Circuit Boards Location**

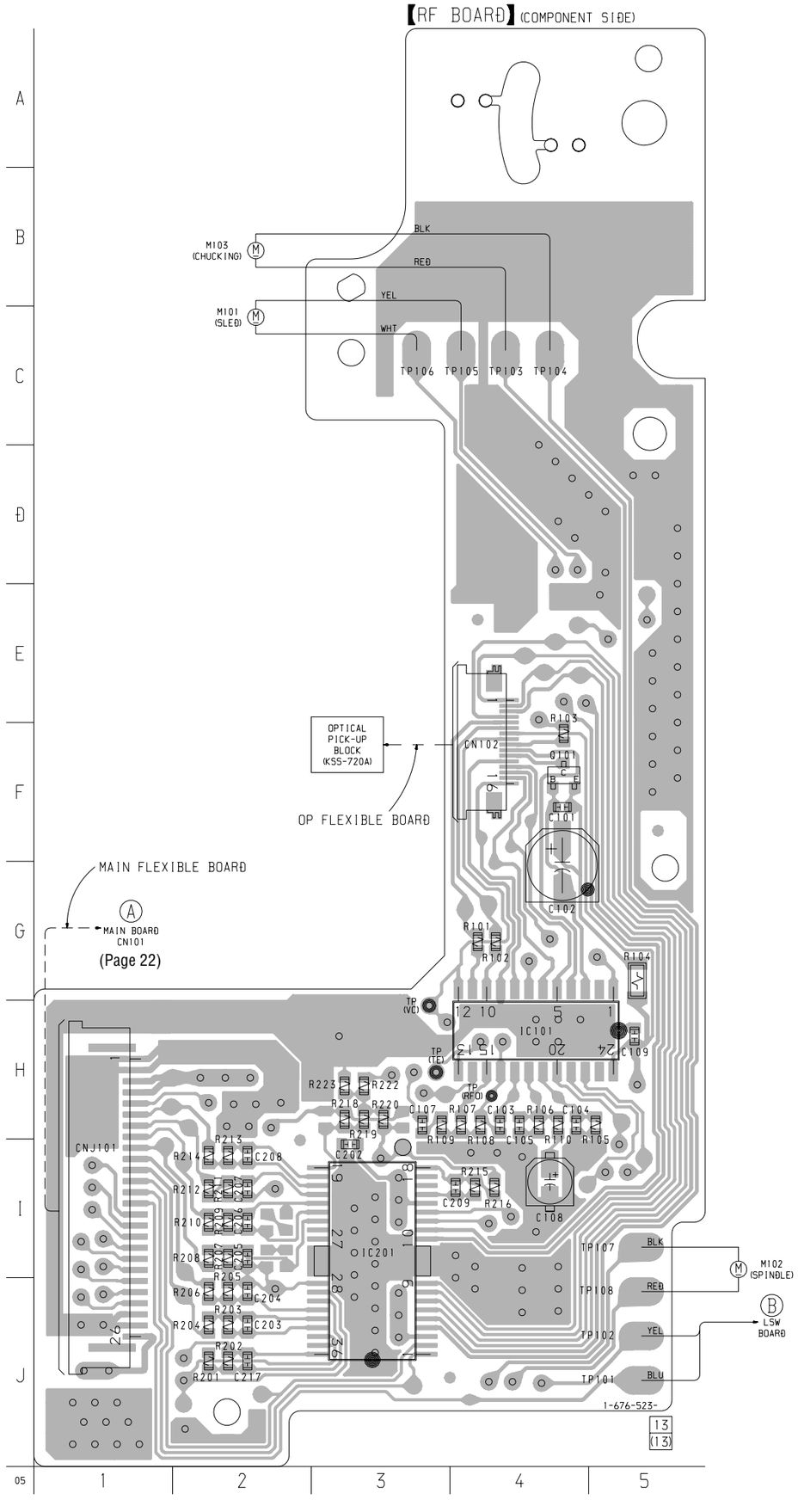


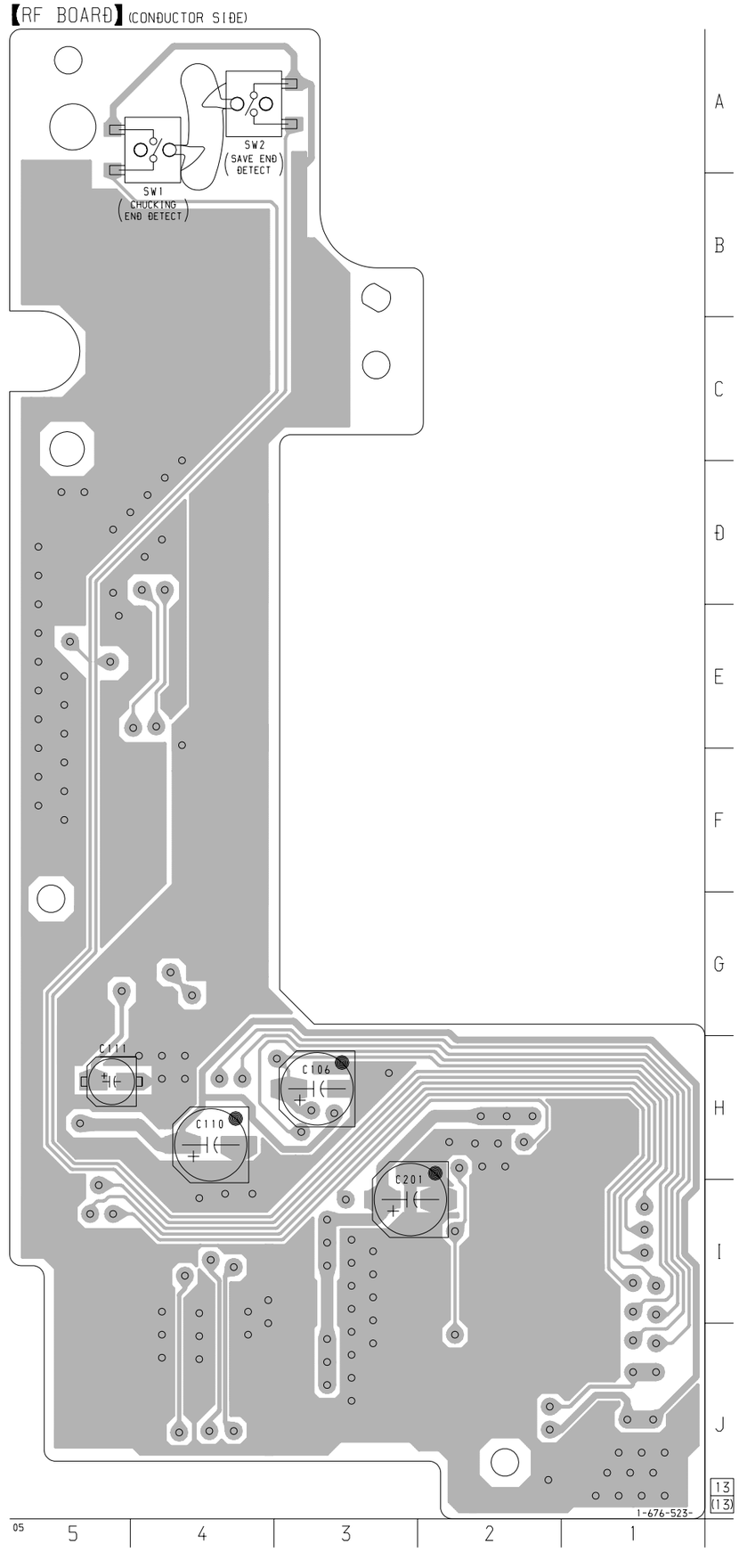
6-4. PRINTED WIRING BOARDS – LSW/RF Boards –

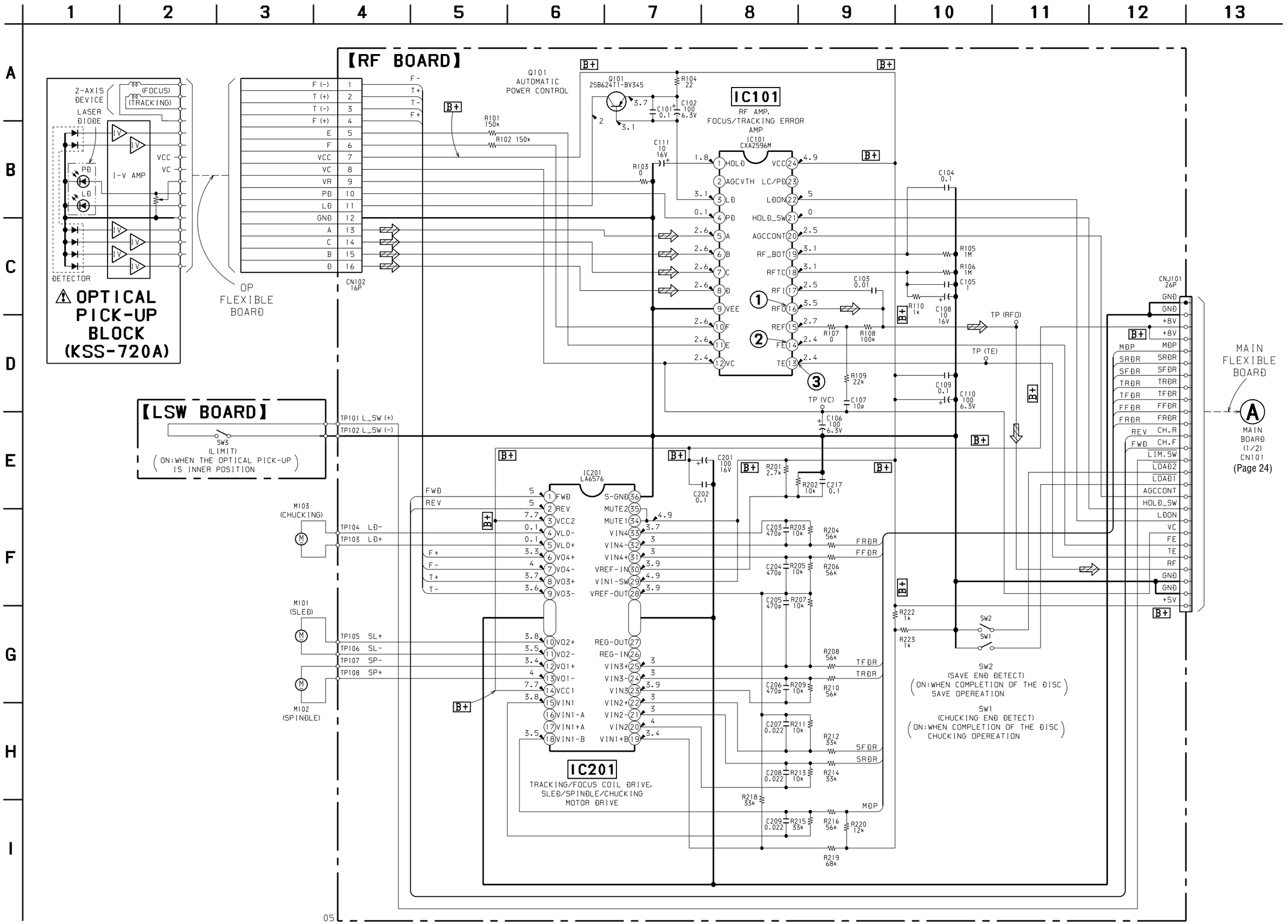
• See page 19 for Circuit Boards Location.

• **Semiconductor Location**
– RF Board–
(Component Side)

Ref. No.	Location
IC101	H-4
IC201	I-3
Q101	F-4







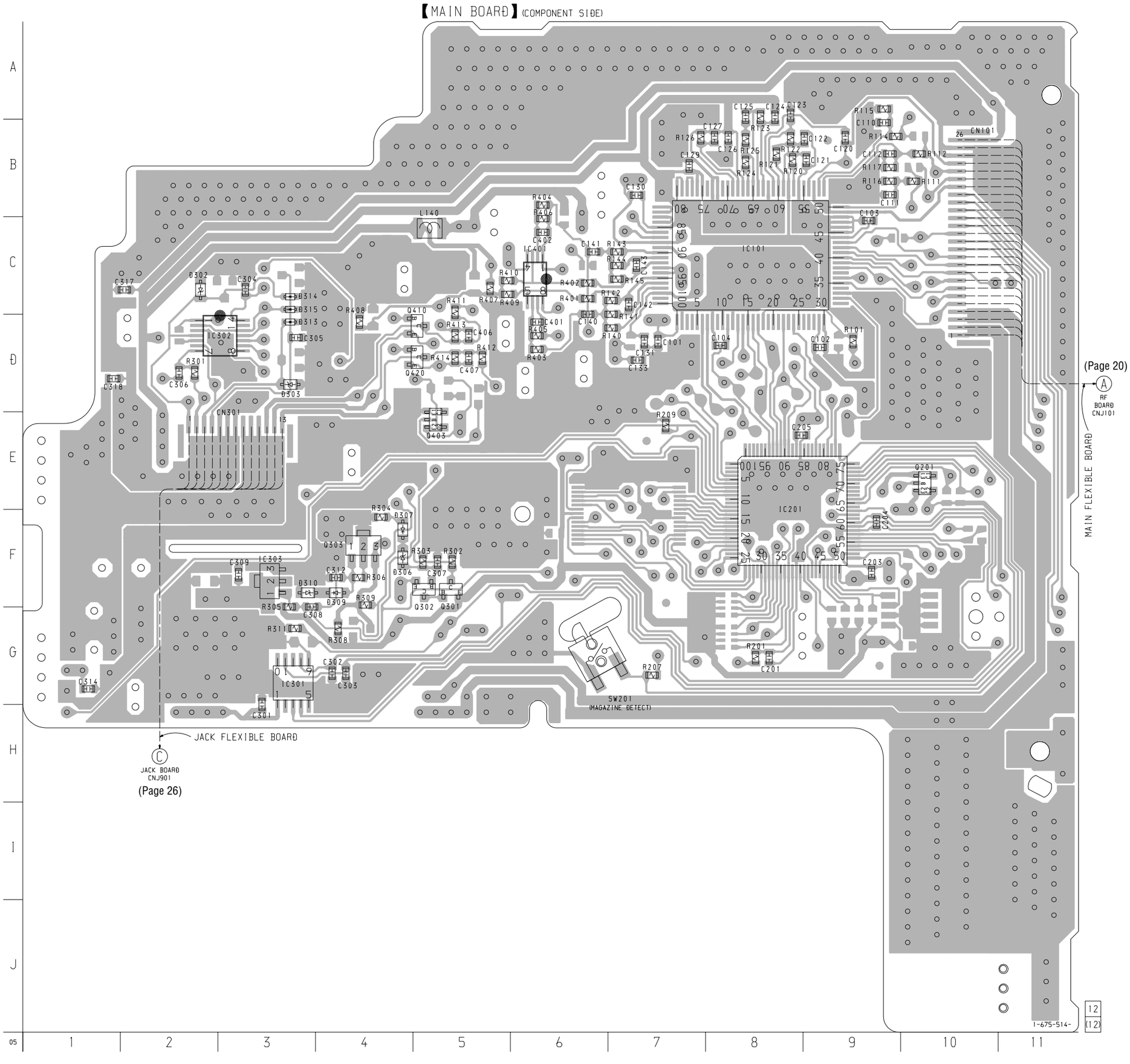
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-6. PRINTED WIRING BOARD – MAIN Board (Component Side) –

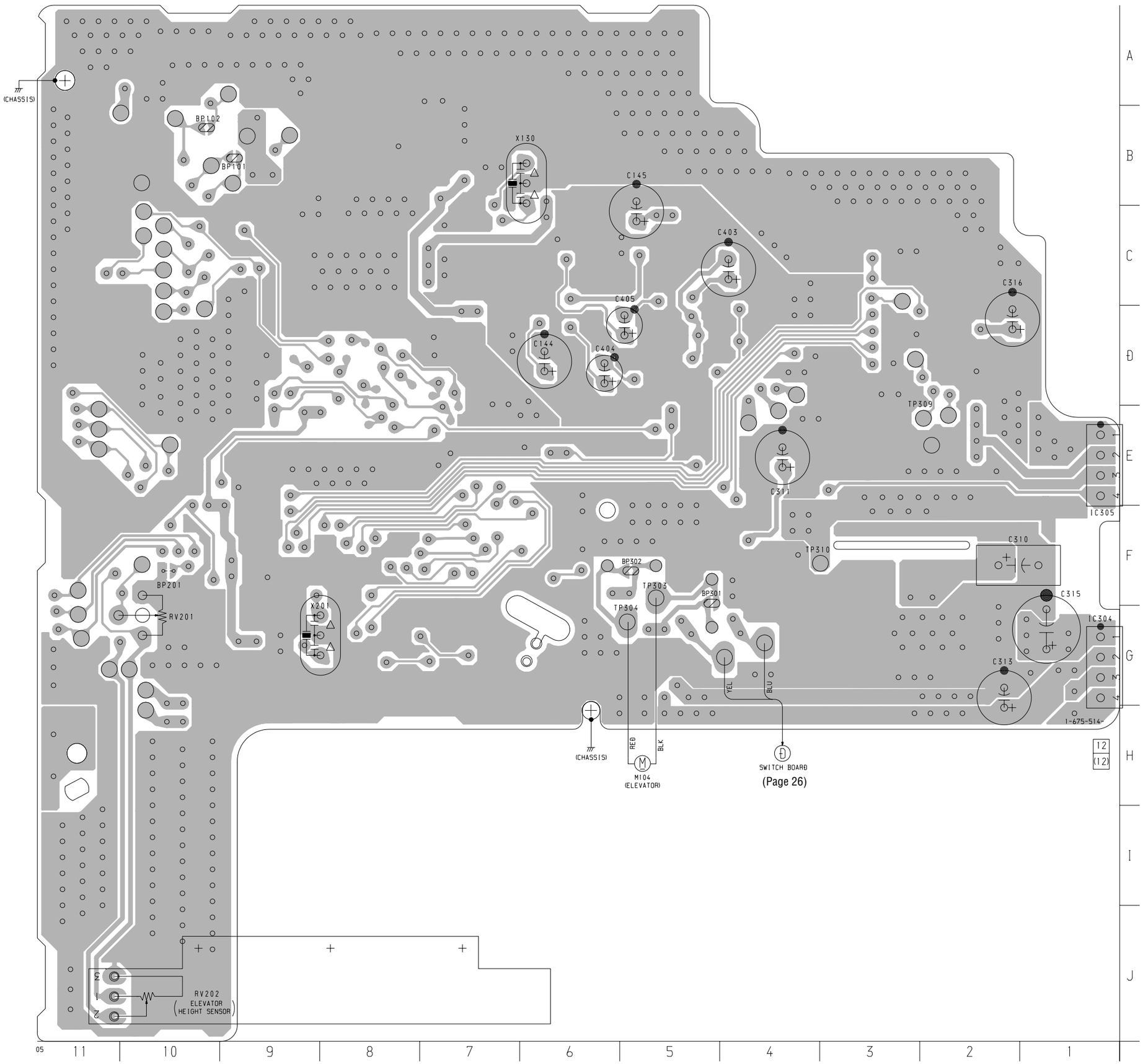
• See page 19 for Circuit Boards Location.

- **Semiconductor Location**

Ref. No.	Location
D302	D-2
D303	D-3
D306	F-4
D307	F-4
D309	F-4
D310	F-3
D313	D-3
D314	C-3
D315	C-3
IC101	C-8
IC201	E-8
IC301	G-3
IC302	D-3
IC303	F-3
IC401	C-6
Q201	E-10
Q301	F-5
Q302	F-5
Q303	F-4
Q403	E-5
Q410	D-5
Q420	D-5



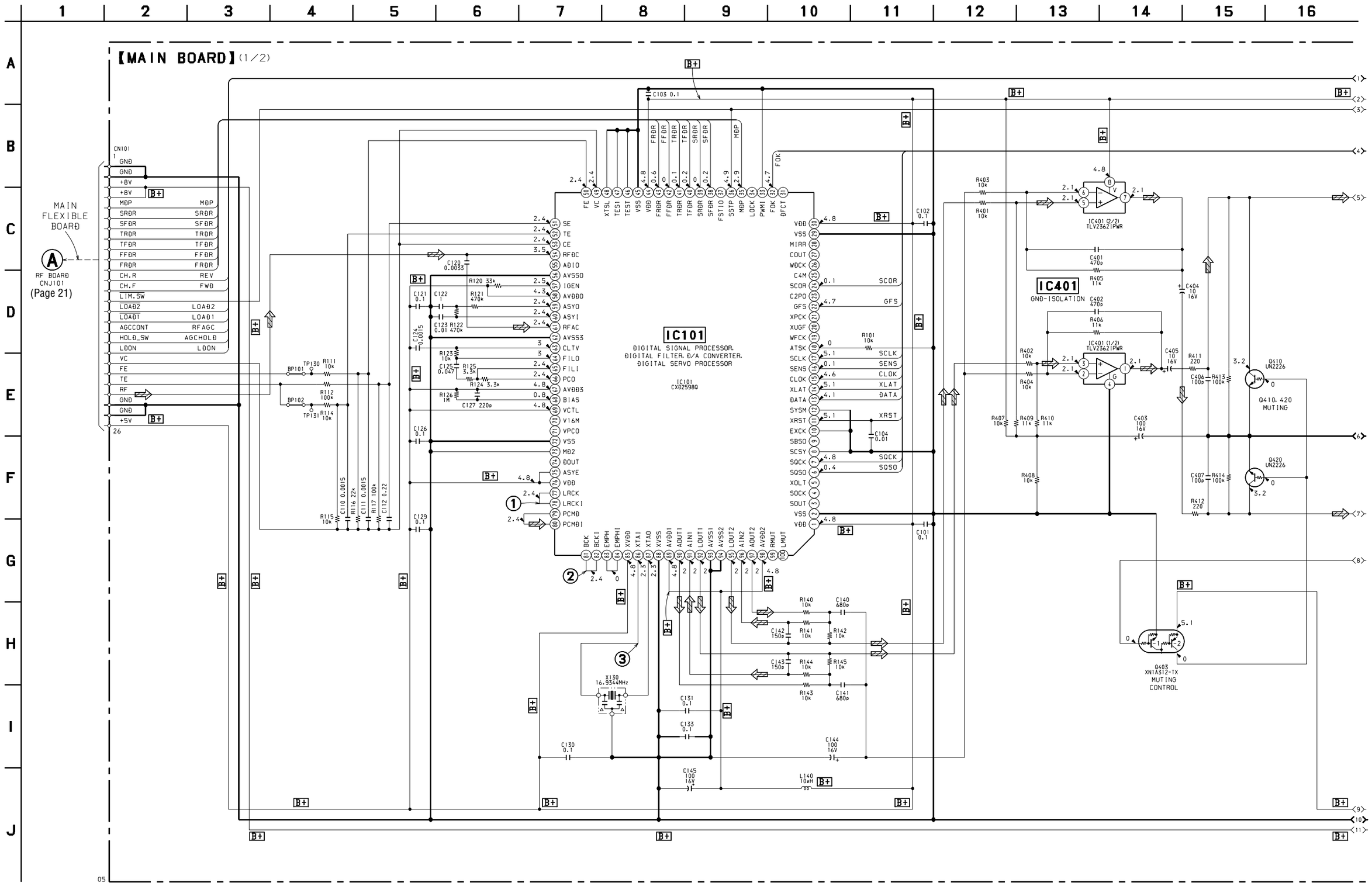
【MAIN BOARD】(CONDUCTOR SIDE)



- **Semiconductor Location**

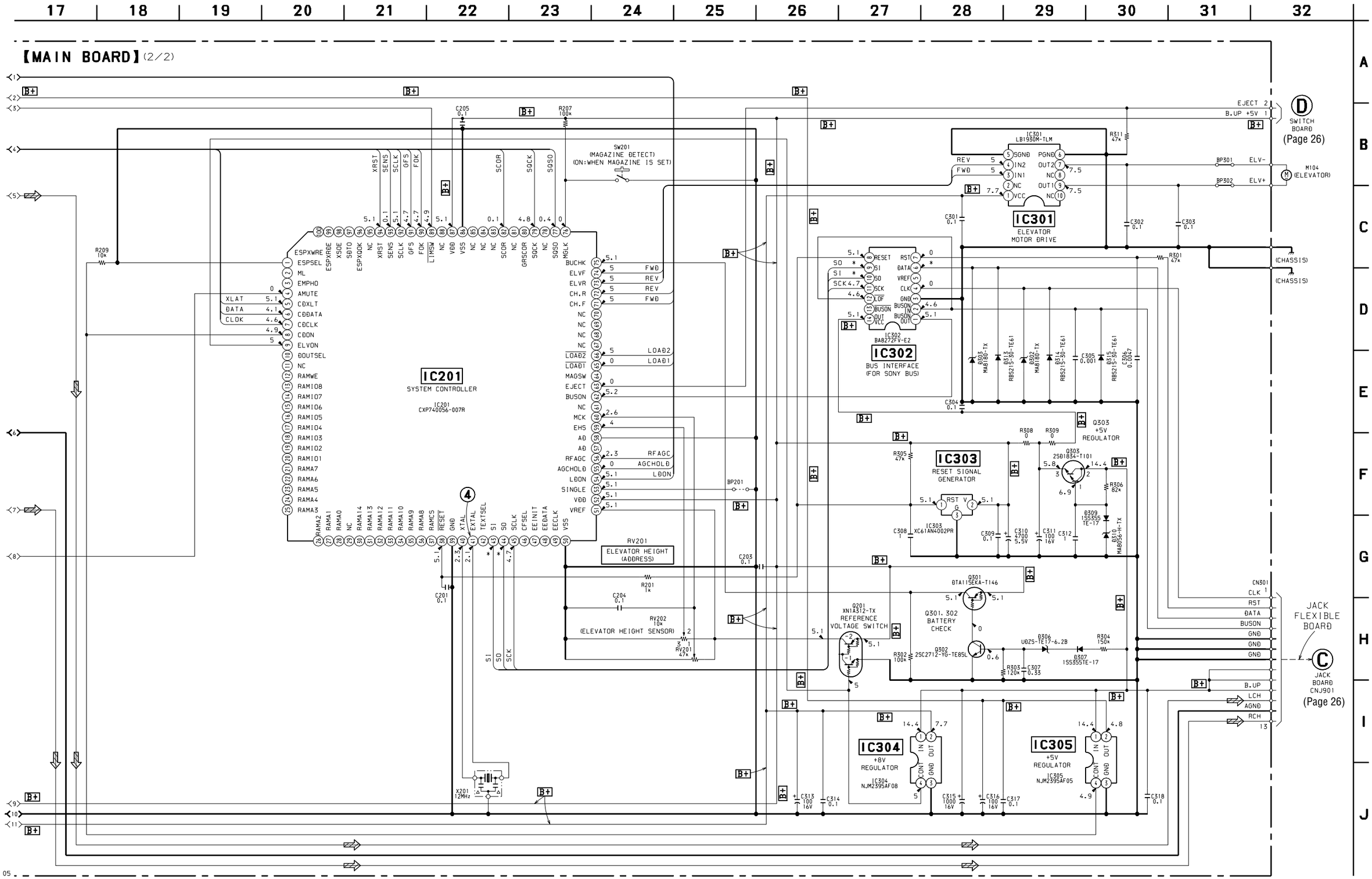
Ref. No.	Location
IC304	G-1
IC305	E-1

6-8. SCHEMATIC DIAGRAM – MAIN Board (1/2) – • See page 27 for Waveforms. • See page 28 for IC Block Diagram.



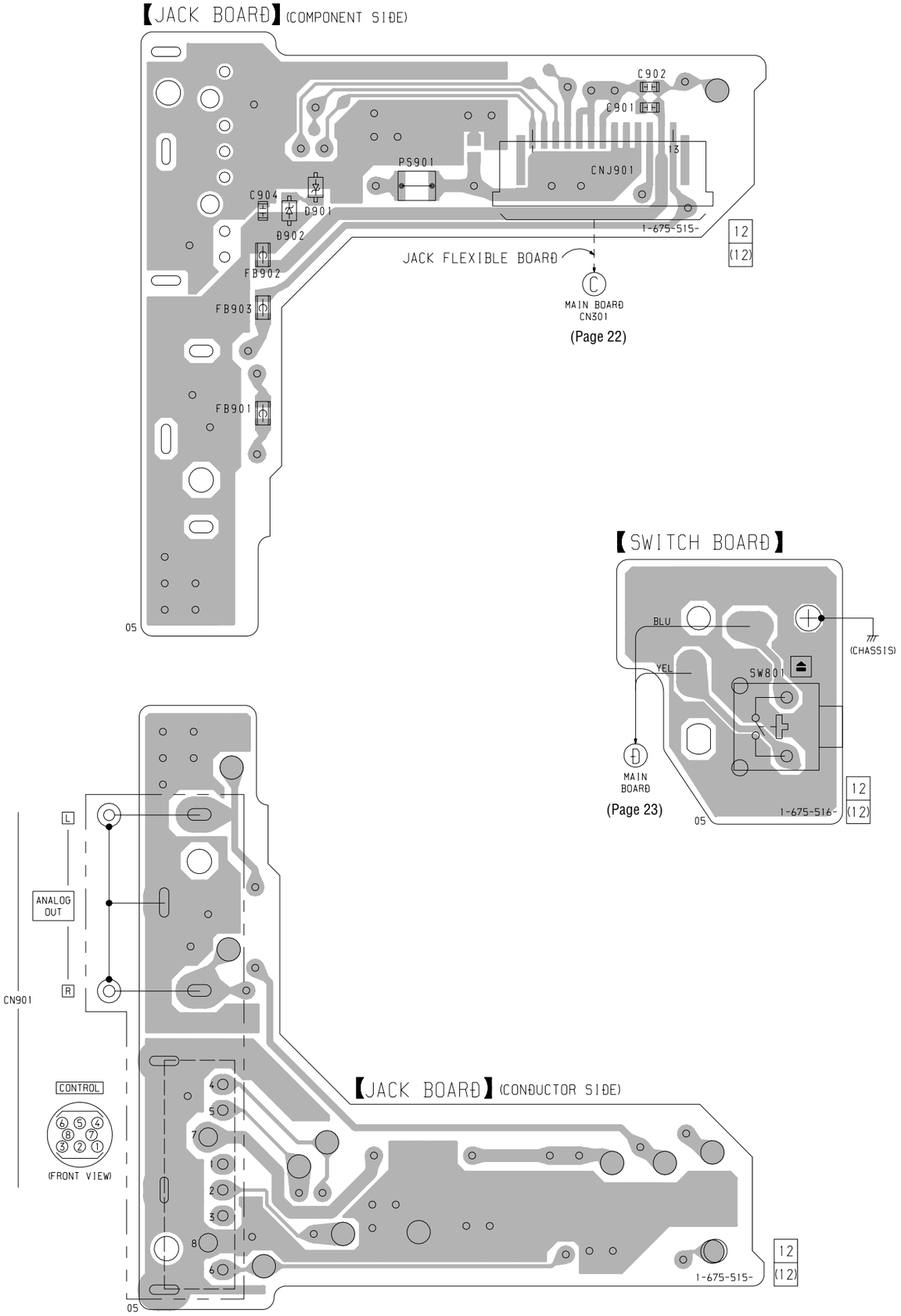
6-9. SCHEMATIC DIAGRAM – MAIN Board (2/2) –

• See page 27 for Waveform. • See page 28 for IC Block Diagrams.

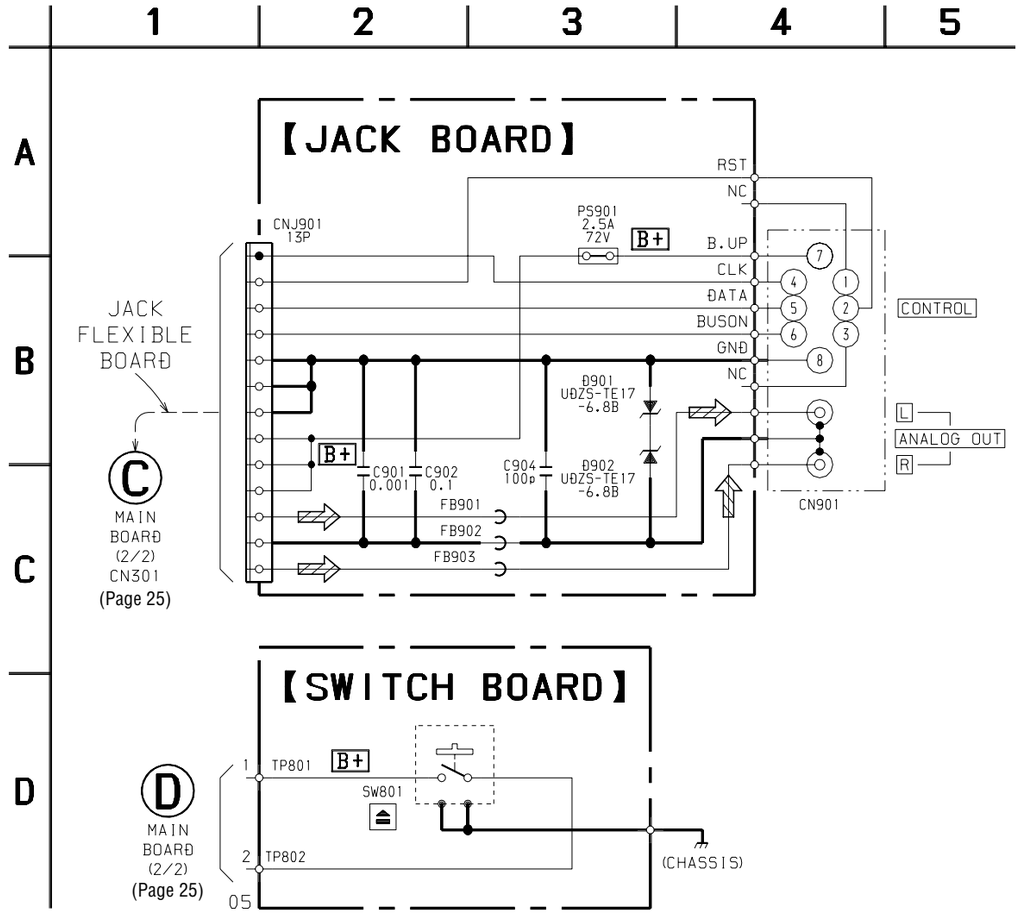


6-10. PRINTED WIRING BOARDS – JACK/SWITCH Boards –

• See page 19 for Circuit Boards Location.



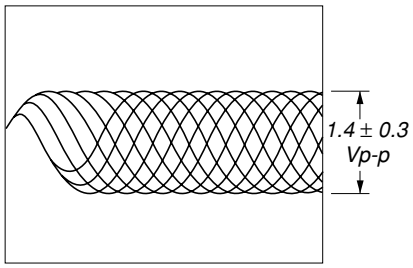
6-11. SCHEMATIC DIAGRAM – JACK/SWITCH Boards –



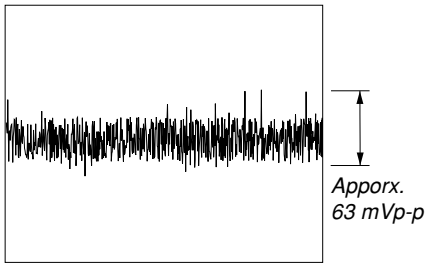
• **Waveforms**

– RF Board –

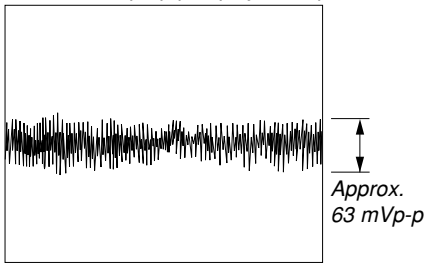
❶ IC101 ⑯ (RFO) (CD play mode)



❷ IC101 ⑭ (FE) (CD play mode)

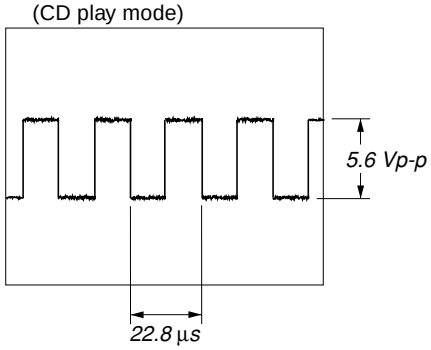


❸ IC101 ⑬ (TE) (CD play mode)

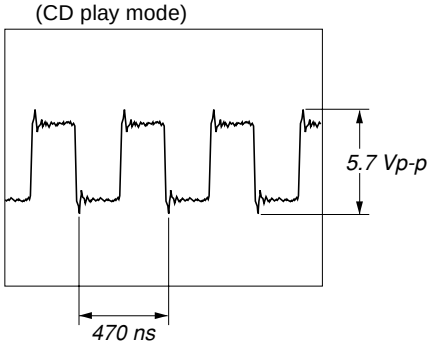


– MAIN Board –

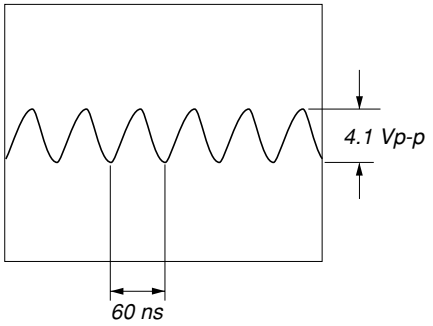
❶ IC101 ㊼ (LRCK), ㊽ (LRCKI) (CD play mode)



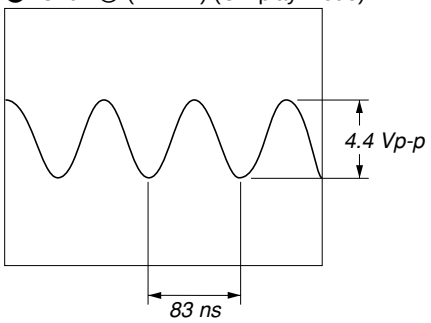
❷ IC101 ㊶ (BCK), ㊷ (BCKI) (CD play mode)



❸ IC101 ㊻ (XTAI) (CD play mode)

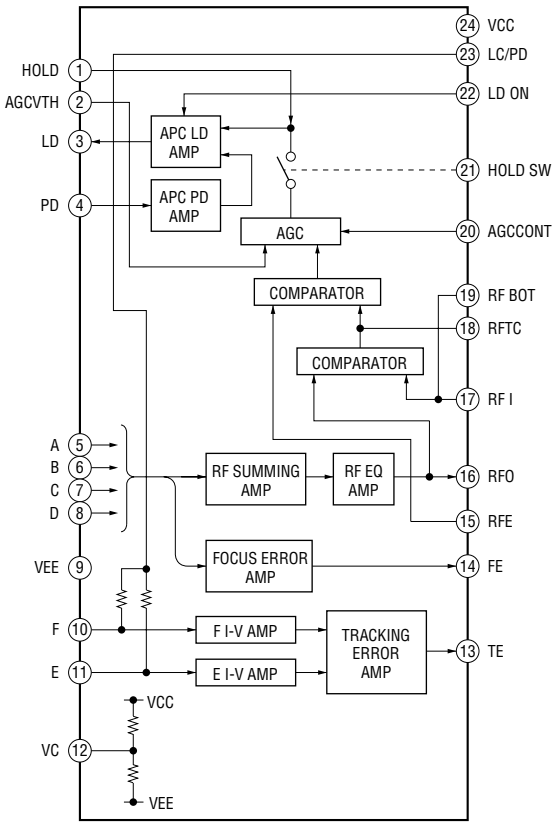


❹ IC201 ㊶ (EXTAL) (CD play mode)

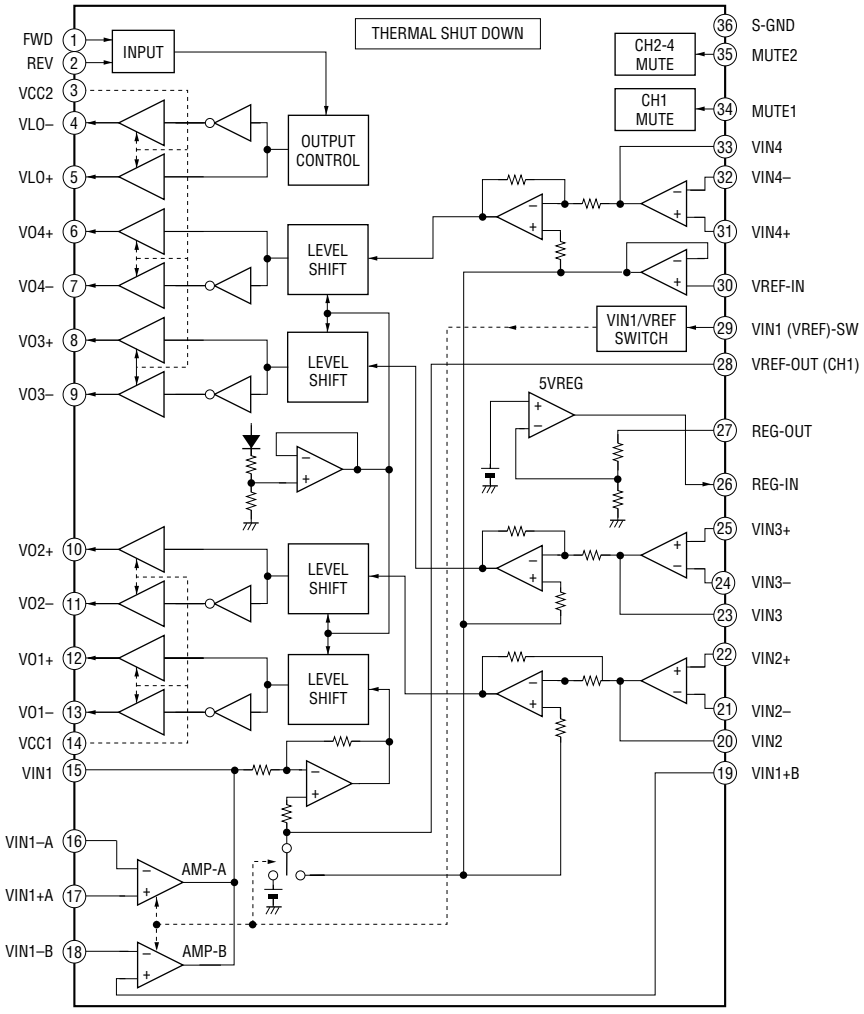


• IC Block Diagrams
– RF Board –

IC101 CXA2596M-T6

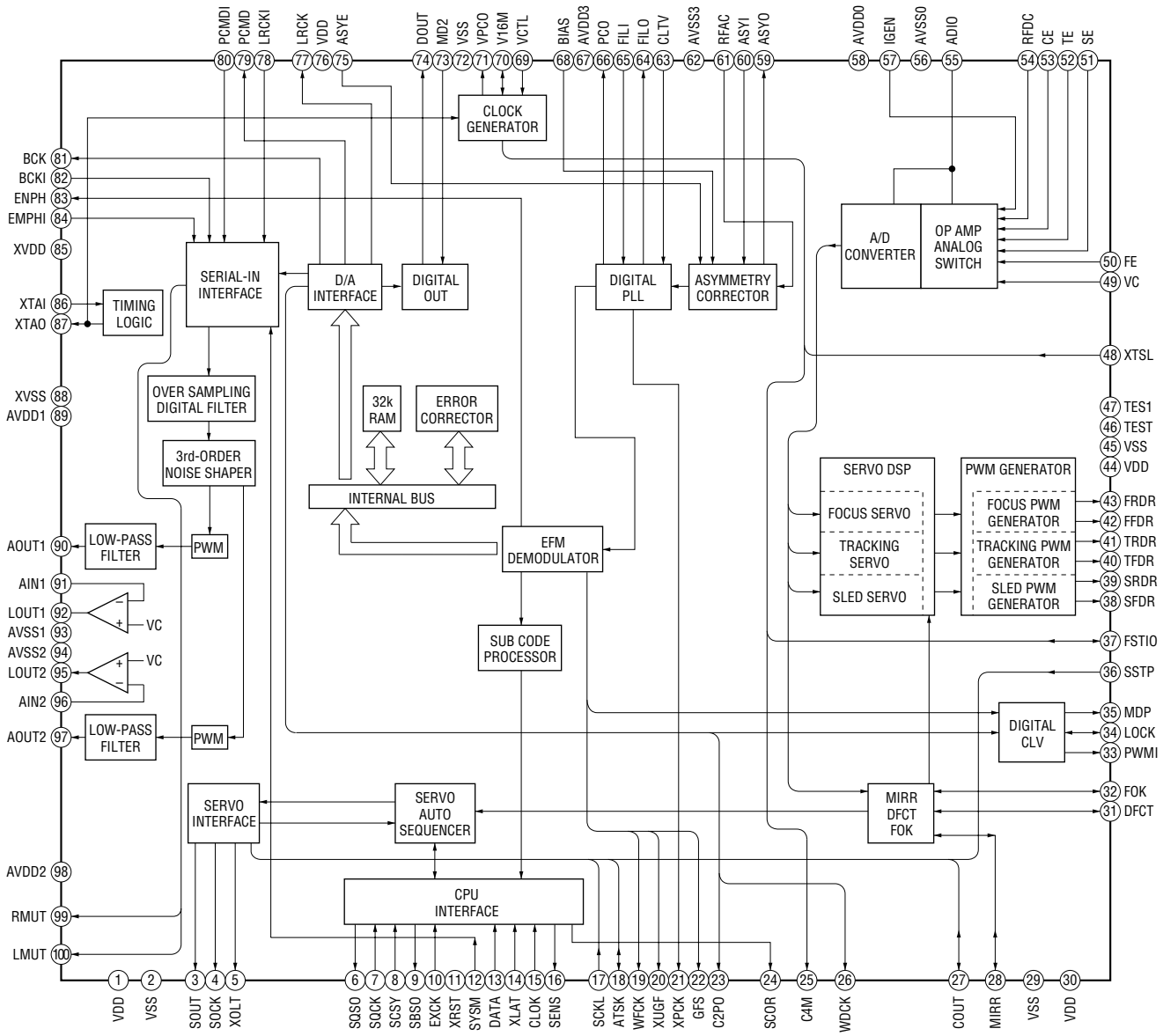


IC201 LA6576L-TE-L

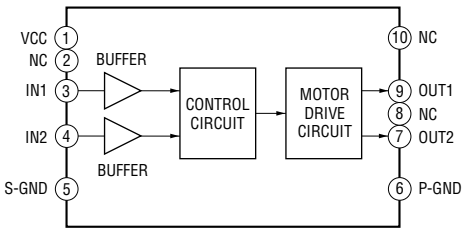


– MAIN Board –

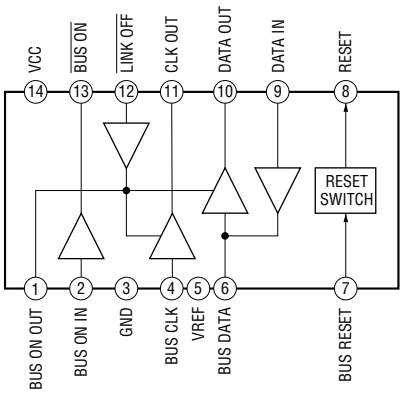
IC101 CXD2598Q



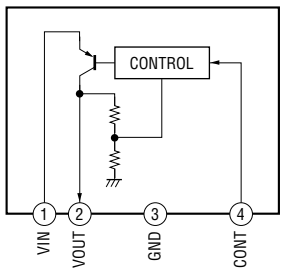
IC301 LB1930M-TLM



IC302 BA8272FV-E2



IC304 NJM2395AF08
IC305 NJM2395AF05



6-12. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC201 CXP740056-007R (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	ESPSEL	I	ESP on/off setting terminal Not used (fixed at "L")
2	ML	O	Normal/high speed playback control signal output terminal "L": high speed playback Not used (open)
3	EMPHO	O	Emphasis signal output terminal Not used (open)
4	AMUTE	O	Audio line muting on/off control signal output terminal "H": muting on
5	CDXLT	O	Serial data latch pulse signal output to the CXD2598Q (IC101)
6	CDDATA	O	Serial data output to the CXD2598Q (IC101)
7	CDCLK	O	Serial data transfer clock signal output to the CXD2598Q (IC101)
8	CDON	O	D/A converter and servo section power supply on/off control signal output "H": power on
9	ELVON	O	Mechanism deck section power supply on/off control signal output "H": power on
10	DOUTSEL	I	Digital output on/off control signal input terminal "L": digital output on Not used (open)
11	NC	—	Not used (open)
12	RAMWE	O	Data write enable signal output to the S-RAM "L": active Not used (open)
13 to 20	RAMIO8 to RAMIO1	I/O	Two-way data bus with the S-RAM Not used (open)
21 to 28	RAMA7 to RAMA0	O	Address signal output to the S-RAM Not used (open)
29	NC	—	Not used (open)
30 to 36	RAMA14 to RAMA8	O	Address signal output to the S-RAM Not used (open)
37	RAMCS	O	Chip select signal output to the S-RAM "L": active Not used (open)
38	$\overline{\text{RESET}}$	I	System reset signal input from the SONY bus interface (IC302) and reset signal generator (IC303) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
39	GND	—	Ground terminal
40	XTAL	O	Main system clock output terminal (12 MHz)
41	EXTAL	I	Main system clock input terminal (12 MHz)
42	TEXTSEL	I	CD text mode setting terminal "L": CD text on, "H": does not display track name Not used (open)
43	SI	I	Serial data input from the SONY bus interface (IC302)
44	SO	O	Serial data output to the SONY bus interface (IC302)
45	SCLK	I	Serial data transfer clock signal input from the SONY bus interface (IC302)
46	CFSEL	I	Custom file on/off setting terminal "L" custom file on Not used (open)
47	EEINIT	I	Initialize signal input for the EEPROM "H": format Not used (open)
48	EEDATA	I/O	Two-way data bus with the EEPROM Not used (open)
49	EECLK	O	Serial data transfer clock signal output to the EEPROM Not used (open)
50	VSS	—	Ground terminal (for A/D converter)
51	AVREF	I	Reference voltage (+5V) input terminal (for A/D converter)
52	VDD	—	Power supply terminal (+5V) (for A/D converter)
53	SINGLE	I	Setting terminal for the single disc/multiple discs mode "L": single mode, "H": multiple discs mode Fixed at "H" in this set (open)
54	LDON	O	The laser automatic power control on/off signal output "H": automatic power control on
55	AGCHOLD	O	RF AGC hold on/off signal output "H": hold
56	RFAGC	I/O	RF AGC level control signal output "L": off, center voltage: 40%, "H": 60%
57	AD	I	A/D input terminal Not used (open)
58	AD	I	A/D input terminal Not used (fixed at "L")

Pin No.	Pin Name	I/O	Description
59	EHS	I	Elevator height position detect input from the RV202 (elevator height sensor) (A/D input)
60	MCK	I	Input of signal for the fine adjustment (elevator height (address) adjustment; RV201) of elevator position (A/D input)
61	NC	—	Not used (open)
62	BUSON	I	Bus on/off control signal input from the SONY bus interface (IC302) "H" bus on
63	EJECT	I	Eject switch (SW801) input terminal "H" active
64	MAGSW	I	Magazine in/out detect switch input terminal Not used (open)
65	$\overline{\text{LOAD1}}$	I	Chucking end detect switch (SW1) input terminal "L": When completion of the disc chucking operation
66	$\overline{\text{LOAD2}}$	I	Save end detect switch (SW2) input terminal "L": When completion of the disc save operation
67 to 70	NC	—	Not used (open)
71	CH.F	O	Motor drive signal (save direction) output to the chucking motor drive (IC201) "L" active *1
72	CH.R	O	Motor drive signal (chucking direction) output to the chucking motor drive (IC201) "L" active *1
73	ELVR	O	Motor drive signal (elevator down direction) output to the elevator motor drive (IC301) "L" active *2
74	ELVF	O	Motor drive signal (elevator up direction) output to the elevator motor drive (IC301) "L" active *2
75	BUCHK	I	Battery detect signal input terminal "H": battery on
76	MGLK	I	Magazine detect switch (SW201) input "L": magazine is set
77	SQSO	O	Subcode Q/text serial data output to the CXD2598Q (IC101)
78	NC	—	Not used (open)
79	SQCK	O	Subcode Q/text serial data transfer clock signal output to the CXD2598Q (IC101)
80	GRSCOR	I	Subcode sync (S0+S1) detection signal input terminal Not used (open)
81	NC	—	Not used (open)
82	SCOR	I	Subcode sync (S0+S1) detection signal input from the CXD2598Q (IC101)
83 to 85	NC	—	Not used (open)
86	VSS	—	Ground terminal
87	VDD	—	Power supply terminal (+5V)
88	NC	—	Not used (open)
89	$\overline{\text{LIMSW}}$	I	Sled limit in detect switch (SW3) input terminal "L": When the optical pick-up is inner position
90	FOK	I	Focus OK signal input from the CXD2598Q (IC101) "H" is input when focus is on ("L": NG)
91	GFS	I	Guard frame sync signal input from the CXD2598Q (IC101) "L": NG, "H": OK
92	SCLK	O	Serial data transfer clock signal output to the CXD2598Q (IC101)
93	SENS	I	Internal status signal (sense signal) input from the CXD2598Q (IC101)
94	XRST	O	System reset signal output to the CXD2598Q (IC101) "L": reset
95	NC	—	Not used (open)
96	ESPXQOK	O	Subcode Q OK pulse signal output terminal "L": active Not used (open)
97	SDTO	I	ESP status signal input terminal Not used (open)
98	XSOE	O	ESP status read enable signal output terminal "L": active Not used (open)
99	ESPXRDE	O	ESP read enable signal output terminal "L": active Not used (open)
100	ESPXWRE	O	ESP write enable signal output terminal "L": active Not used (open)

*1 chucking motor (M103) control

Mode / Terminal	STOP	LOAD CHUCKING	SAVE	BRAKE
CH.F (pin ⑦①)	“H”	“H”	“L”	“L”
CH.R (pin ⑦②)	“H”	“L”	“H”	“L”

*2 elevator motor (M104) control

Mode / Terminal	STOP	ELEVATOR UP	ELEVATOR DOWN	BRAKE
ELVF (pin ⑦④)	“H”	“L”	“H”	“L”
ELVR (pin ⑦③)	“H”	“H”	“L”	“L”

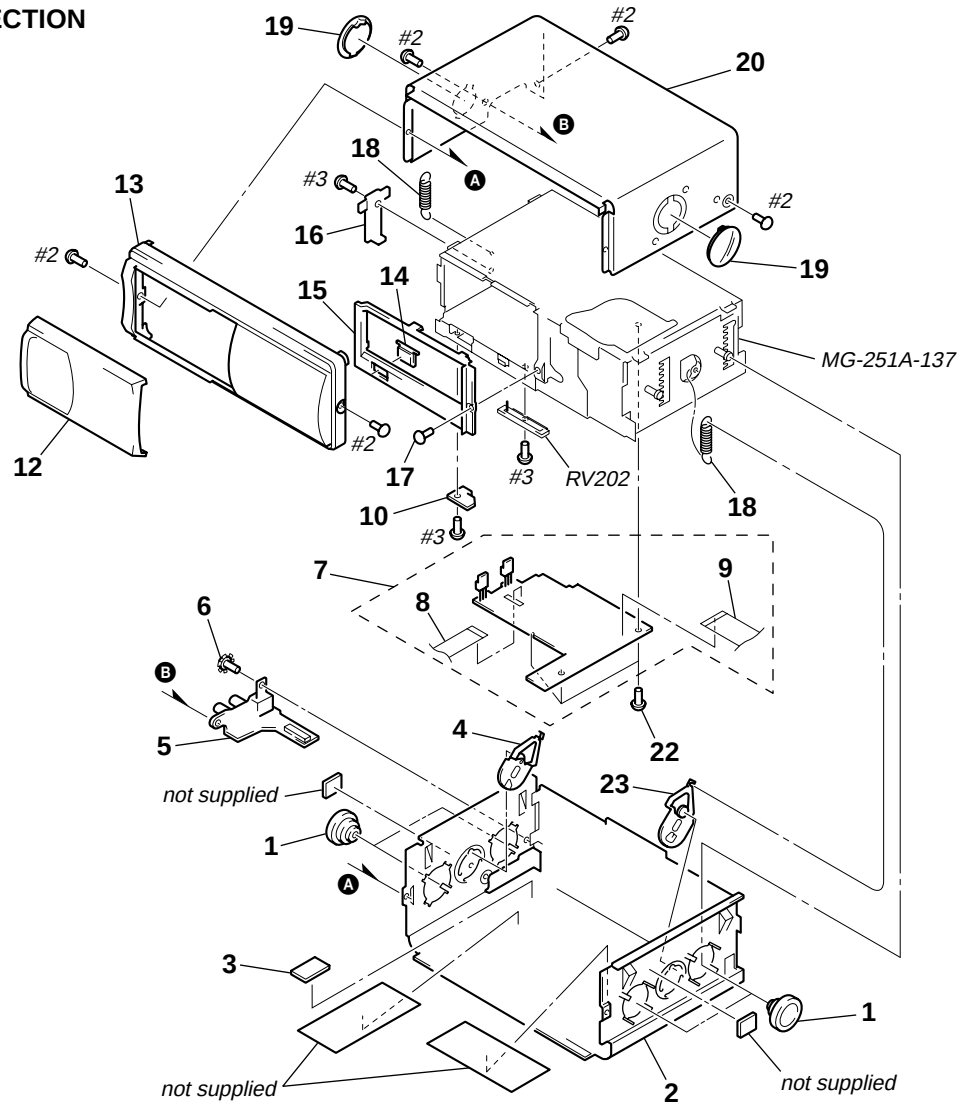
SECTION 7
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

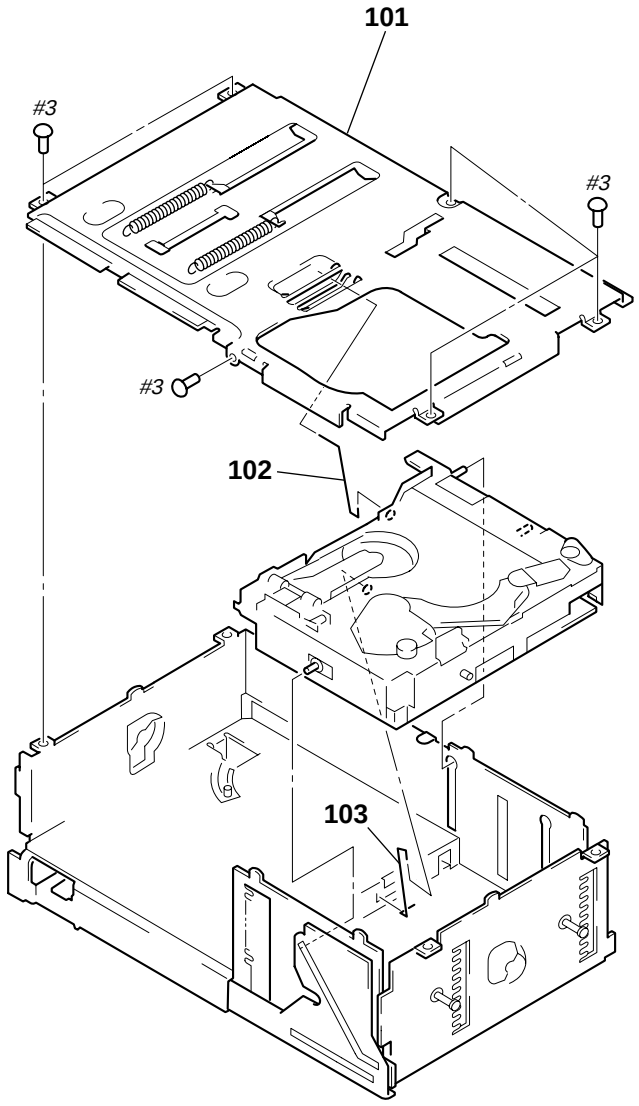
(1) CASE SECTION



Ref. No.	Part No.	Description	Remark
1	3-047-852-01	DAMPER (T)	
* 2	3-045-543-01	CASE (LOWER. T)	
* 3	3-024-065-01	CUSHION (EJECT-T)	
4	X-3375-357-1	ARM (FLT) ASSY	
* 5	1-675-515-11	JACK BOARD	
6	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
* 7	A-3294-822-A	MAIN BOARD, COMPLETE	
8	1-676-340-11	JACK FLEXIBLE BOARD	
9	1-676-339-11	MAIN FLEXIBLE BOARD	
* 10	1-675-516-11	SWITCH BOARD	
12	X-3379-707-1	DOOR (L) ASSY (646)	
12	X-3380-045-1	DOOR (L) ASSY (646X)	

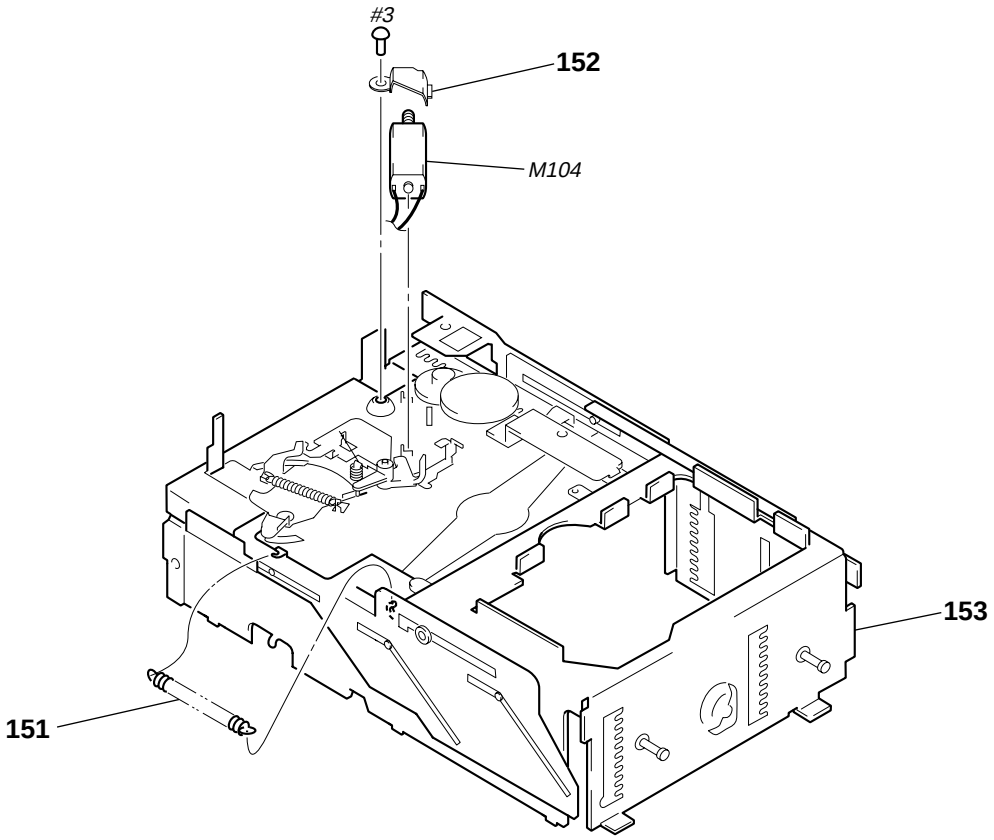
Ref. No.	Part No.	Description	Remark
13	3-224-392-01	PANEL (L), FRONT (646)	
13	3-224-392-31	PANEL (L), FRONT (646X)	
14	3-022-007-01	BUTTON (EJT) (⏏)	
15	3-041-218-21	ESCUTCHEON (T)	
* 16	3-022-012-01	HEAT SINK (T)	
17	3-042-244-11	SCREW (T)	
18	3-038-166-01	SPRING (FL), TENSION COIL	
19	3-047-886-11	LEVER (FLT. 838)	
* 20	3-046-160-01	CASE (UPPER. T)	
22	3-935-636-11	SCREW (FP)	
23	X-3375-360-1	ARM (FRT) ASSY	
RV202	1-227-137-11	RES, VAR, SLIDE 10K (ELEVATOR HEIGHT SENSOR)	

(2) MECHANISM DECK SECTION-1 (MG-251A-137)



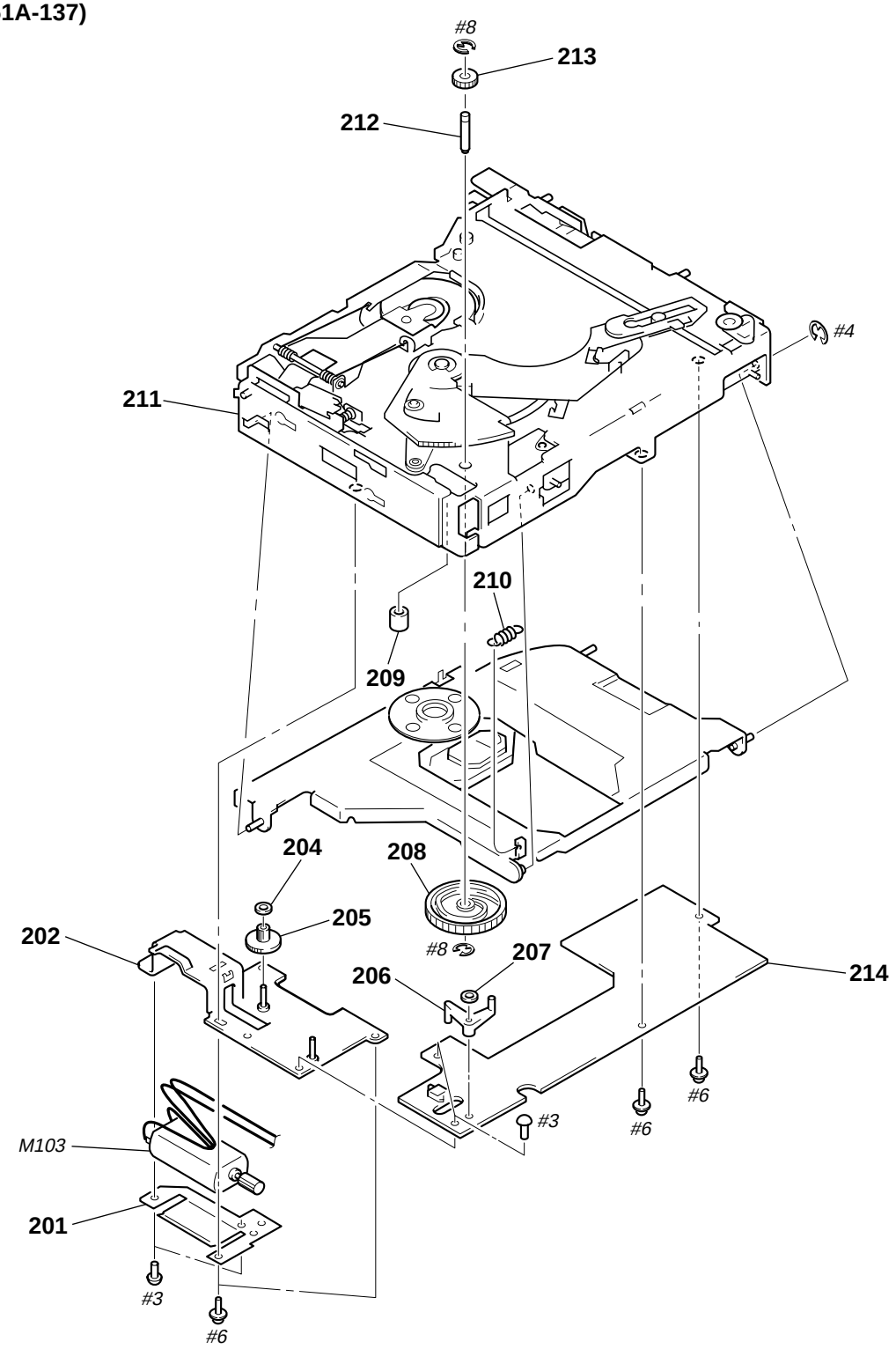
Ref. No.	Part No.	Description	Remark
101	X-3378-091-1	CHASSIS (U. S) SUB ASSY	
102	3-024-161-11	SPRING (SUT)	
103	3-011-997-01	SPRING (STOPPER. LOWER)	

(3) MECHANISM DECK SECTION-2 (MG-251A-137)



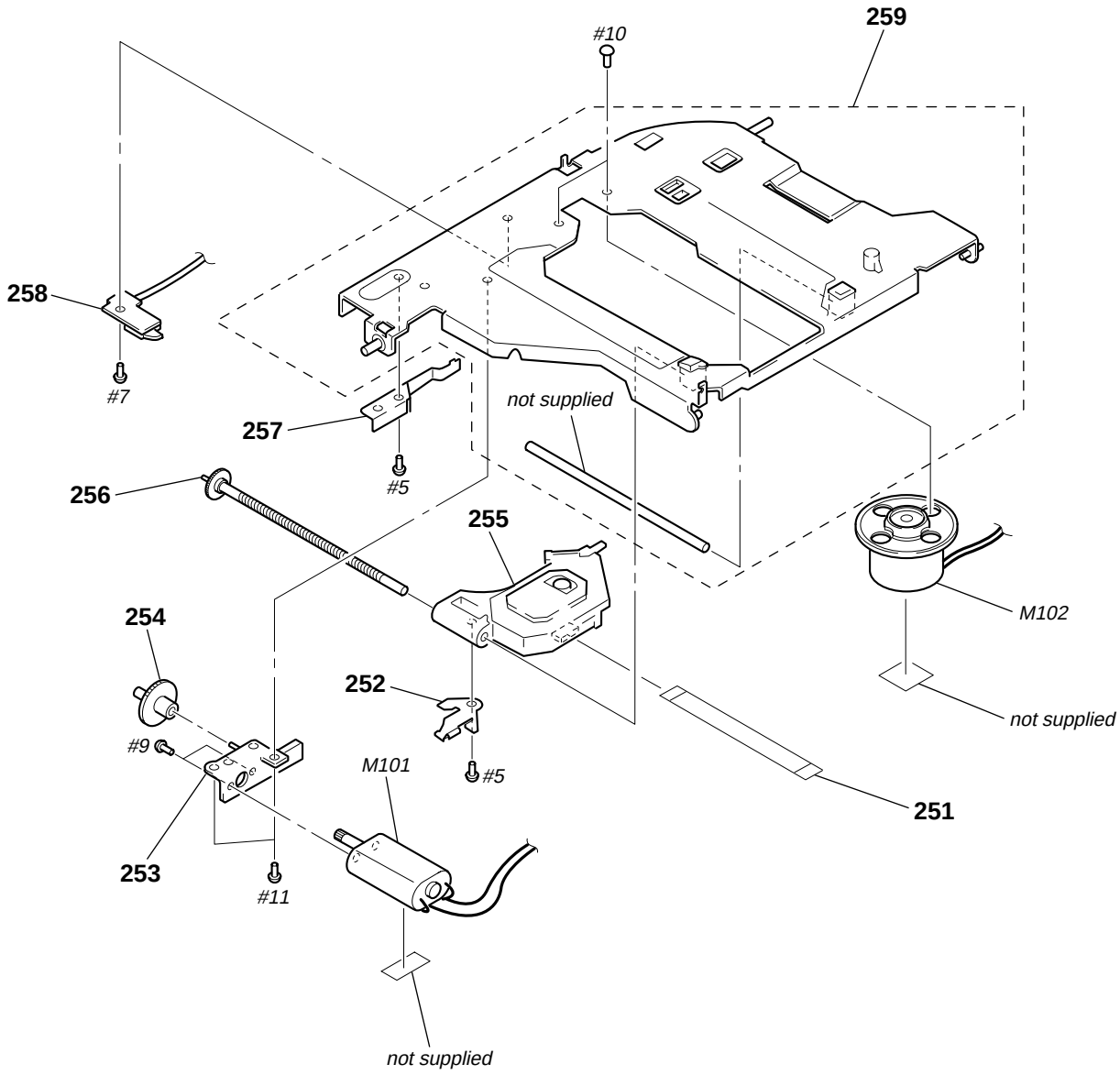
Ref. No.	Part No.	Description	Remark
151	3-024-170-01	SPRING (SB), TENSION	
* 152	3-040-790-01	BRACKET (EVM. S)	
153	X-3378-092-1	CHASSIS (D. S) SUB ASSY	
M104	A-3301-123-A	ELJ MOTOR ASSY (ELEVATOR)	

(4) MECHANISM DECK SECTION-3 (MG-251A-137)



Ref. No.	Part No.	Description	Remark
* 201	3-024-150-01	RETAINER (CHM)	
* 202	X-3378-080-1	BRACKET (CHM. D) ASSY	
204	3-321-813-01	WASHER, COTTER POLYETHYLENE	
205	3-017-139-01	GEAR (WORM LOAD A)	
206	3-022-839-01	ARM (NSW)	
207	3-573-936-00	STOPPER, REEL	
208	X-3375-220-1	GEAR (LOAD CAM) ASSY	
209	3-010-252-11	ROLLER (CRE)	
210	3-010-268-01	SPRING (DH), TENSION	
* 211	A-3290-194-C	MAIN ASSY, CHASSIS (EVY)	
212	3-010-254-11	SHAFT (ROTARY PREVENTION C)	
213	3-010-253-01	GEAR (LOMINI)	
* 214	A-3326-000-A	RF BOARD, COMPLETE	
M103	A-3301-123-A	ELJ MOTOR ASSY (CHUCKING)	

(5) MECHANISM DECK SECTION-4 (MG-251A-137)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
251	1-676-341-11	OP FLEXIBLE BOARD	
252	3-025-743-01	SPRING (FEED), LEAF	
253	X-3378-101-1	HOLDER (SLED. S) ASSY	
254	3-931-832-01	GEAR (SL MIDWAY)	
⚠255	8-820-103-05	OPTICAL PICK-UP KSS-720A/Q-RP	
256	A-3291-669-A	SHAFT (FEED) ASSY	
257	3-010-263-01	DETENT (SHAFT THRUST)	
* 258	1-676-524-11	LSW BOARD	
259	A-3301-954-A	BASE (OPT. S) (J) ASSY	
M101	A-3315-151-A	SLED MOTOR ASSY (251)	
M102	A-3301-998-A	SPINDLE MOTOR (S) SUB ASSY	

JACK **LSW** **MAIN**

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-675-515-12	JACK BOARD			
		**********			
		< CAPACITOR >			
C901	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C902	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C904	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN901	1-779-077-51	PLUG, CONNECTOR (CONTROL, ANALOG OUT)			
CNJ901	1-778-775-21	CONNECTOR, FPC 13P			
		< DIODE >			
D901	8-719-978-33	DIODE DTZ-TT11-6.8B			
D902	8-719-978-33	DIODE DTZ-TT11-6.8B			
		< FERRITE BEAD >			
FB901	1-500-445-21	FERRITE			
FB902	1-500-445-21	FERRITE			
FB903	1-500-445-21	FERRITE			
		< IC LINK >			
PS901	1-576-398-21	RINK, IC (CCP2E63) 2.5A/72V			
**********					
*	1-676-524-13	LSW BOARD			
		**********			
		< SWITCH >			
SW3	1-786-079-21	SWITCH, PUSH (1 KEY) (LIMIT)			
**********					
*	A-3294-822-A	MAIN BOARD, COMPLETE			
		**********			
	1-676-339-12	MAIN FLEXIBLE BOARD			
	1-676-340-12	JACK FLEXIBLE BOARD			
		< CAPACITOR >			
C101	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C102	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C103	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C104	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C111	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C112	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C120	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C121	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C122	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C124	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C125	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C126	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C127	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C129	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C130	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C131	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C133	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C140	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C141	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C142	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C143	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C144	1-126-382-11	ELECT	100uF	20%	16V
C145	1-126-382-11	ELECT	100uF	20%	16V
C201	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C203	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C204	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C205	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C301	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C302	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C303	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C304	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C305	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C306	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C307	1-165-112-11	CERAMIC CHIP	0.33uF	20%	10V
C308	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C309	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C310	1-137-920-21	ELECT	4700uF		5.5V
C311	1-126-382-11	ELECT	100uF	20%	16V
C312	1-115-156-11	CERAMIC CHIP	1uF		10V
C313	1-126-382-11	ELECT	100uF	20%	16V
C314	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C315	1-115-466-00	ELECT	1000uF	20%	16V
C316	1-126-382-11	ELECT	100uF	20%	16V
C317	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C318	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C401	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C402	1-162-962-11	CERAMIC CHIP	470PF	10%	50V

Ref. No.	Part No.	Description			Remark
C403	1-126-382-11	ELECT	100uF	20%	16V
C404	1-126-157-11	ELECT	10uF	20%	16V
C405	1-126-157-11	ELECT	10uF	20%	16V
C406	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C407	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
		< DIODE >			
D302	8-719-017-94	DIODE MA8180			
D303	8-719-017-94	DIODE MA8180			
D306	8-719-069-56	DIODE UDZS-TE17-6.2B			
D307	8-719-988-61	DIODE 1SS355TE-17			
D309	8-719-988-61	DIODE 1SS355TE-17			
D310	8-719-977-03	DIODE DTZ5.6B			
D313	8-719-071-34	DIODE RB521S-30-TE61			
D314	8-719-071-34	DIODE RB521S-30-TE61			
D315	8-719-071-34	DIODE RB521S-30-TE61			
		< IC >			
IC101	8-752-392-04	IC CXD2598Q			
IC201	8-752-914-89	IC CXP740056-007R			
IC301	8-759-527-33	IC LB1930M-TLM			
IC302	8-759-697-48	IC BA8272FV-E2			
IC303	8-759-363-81	IC XC61AN4002PR			
IC304	8-759-833-13	IC NJM2395AF08			
IC305	8-759-833-12	IC NJM2395AF05			
IC401	8-759-662-11	IC TLV2362IPWR			
		< COIL >			
L140	1-414-398-11	INDUCTOR (SMD)10uH			
		< TRANSISTOR >			
Q201	8-729-020-67	TRANSISTOR	XN1A312-TX		
Q301	8-729-028-62	TRANSISTOR	DTA115EKA-T146		
Q302	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q303	8-729-921-12	TRANSISTOR	2SD1834		
Q403	8-729-020-67	TRANSISTOR	XN1A312-TX		
Q410	8-729-015-39	TRANSISTOR	DTC323TK		
Q420	8-729-015-39	TRANSISTOR	DTC323TK		
		< RESISTOR >			
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W
R111	1-216-833-11	METAL CHIP	10K	5%	1/16W
R112	1-216-845-11	METAL CHIP	100K	5%	1/16W
R114	1-216-833-11	METAL CHIP	10K	5%	1/16W
R115	1-216-833-11	METAL CHIP	10K	5%	1/16W
R116	1-216-837-11	METAL CHIP	22K	5%	1/16W
R117	1-216-845-11	METAL CHIP	100K	5%	1/16W
R120	1-216-839-11	METAL CHIP	33K	5%	1/16W
R121	1-216-853-11	METAL CHIP	470K	5%	1/16W
R122	1-216-853-11	METAL CHIP	470K	5%	1/16W
R123	1-216-833-11	METAL CHIP	10K	5%	1/16W
R124	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R125	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R126	1-216-857-11	METAL CHIP	1M	5%	1/16W
R140	1-218-871-11	RES-CHIP	10K	2%	1/16W
R141	1-218-871-11	RES-CHIP	10K	2%	1/16W
R142	1-218-871-11	RES-CHIP	10K	2%	1/16W

Ref. No.	Part No.	Description			Remark
R143	1-218-871-11	RES-CHIP	10K	2%	1/16W
R144	1-218-871-11	RES-CHIP	10K	2%	1/16W
R145	1-218-871-11	RES-CHIP	10K	2%	1/16W
R201	1-216-821-11	METAL CHIP	1K	5%	1/16W
R207	1-216-845-11	METAL CHIP	100K	5%	1/16W
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W
R301	1-216-841-11	METAL CHIP	47K	5%	1/16W
R302	1-216-845-11	METAL CHIP	100K	5%	1/16W
R303	1-216-846-11	METAL CHIP	120K	5%	1/16W
R304	1-216-847-11	METAL CHIP	150K	5%	1/16W
R305	1-216-841-11	METAL CHIP	47K	5%	1/16W
R306	1-216-844-11	METAL CHIP	82K	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R309	1-216-864-11	METAL CHIP	0	5%	1/16W
R311	1-216-841-11	METAL CHIP	47K	5%	1/16W
R401	1-218-871-11	RES-CHIP	10K	2%	1/16W
R402	1-218-871-11	RES-CHIP	10K	2%	1/16W
R403	1-218-871-11	RES-CHIP	10K	2%	1/16W
R404	1-218-871-11	RES-CHIP	10K	2%	1/16W
R405	1-218-645-11	RES-CHIP	11K	2%	1/16W
R406	1-218-645-11	RES-CHIP	11K	2%	1/16W
R407	1-216-833-11	METAL CHIP	10K	5%	1/16W
R408	1-216-833-11	METAL CHIP	10K	5%	1/16W
R409	1-218-645-11	RES-CHIP	11K	2%	1/16W
R410	1-218-645-11	RES-CHIP	11K	2%	1/16W
R411	1-216-813-11	METAL CHIP	220	5%	1/16W
R412	1-216-813-11	METAL CHIP	220	5%	1/16W
R413	1-216-845-11	METAL CHIP	100K	5%	1/16W
R414	1-216-845-11	METAL CHIP	100K	5%	1/16W
		< VARIABLE RESISTOR >			
RV201	1-223-834-11	RES, ADJ, CARBON 47K			
		< SWITCH >			
SW201	1-786-079-21	SWITCH, PUSH (1 KEY) (MAGAZINE DETECT)			
		< VIBRATOR >			
X130	1-760-307-11	VIBRATOR, CERAMIC (16.9344MHz)			
X201	1-579-126-11	VIBRATOR, CERAMIC (12MHz)			
**********					
*	A-3326-000-A	RF BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C102	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C105	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C106	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C107	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C108	1-124-779-00	ELECT CHIP	10uF	20%	16V
C109	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C110	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C111	1-124-779-00	ELECT CHIP	10uF	20%	16V
C201	1-117-681-11	ELECT CHIP	100uF	20%	16V

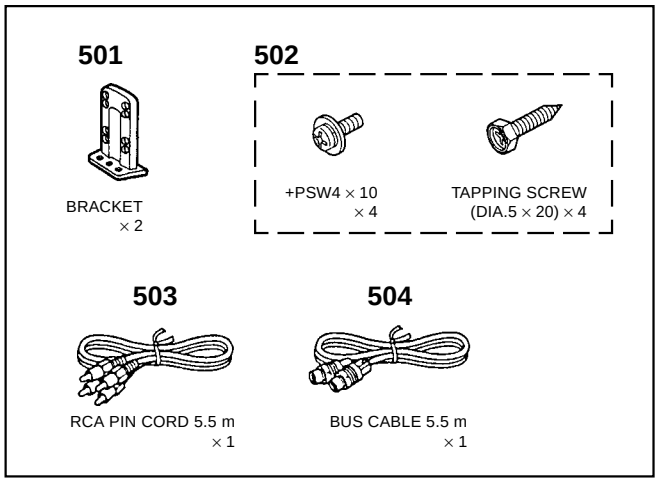
RF SWITCH

Ref. No.	Part No.	Description			Remark
C202	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C203	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C204	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C205	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C206	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C207	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C208	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C209	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C217	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN102	1-778-303-21	CONNECTOR, FPC (ZIF) 16P			
CNJ101	1-778-777-21	CONNECTOR, FPC 26P			
		< IC >			
IC101	8-752-095-36	IC CXA2596M-T6			
IC201	8-759-832-99	IC LA6576L-TE-L			
		< TRANSISTOR >			
Q101	8-729-141-48	TRANSISTOR	2SB624-BV345		
		< RESISTOR >			
R101	1-216-847-11	METAL CHIP	150K	5%	1/16W
R102	1-216-847-11	METAL CHIP	150K	5%	1/16W
R103	1-216-864-11	METAL CHIP	0	5%	1/16W
R104	1-216-158-00	RES-CHIP	22	5%	1/8W
R105	1-216-857-11	METAL CHIP	1M	5%	1/16W
R106	1-216-857-11	METAL CHIP	1M	5%	1/16W
R107	1-216-864-11	METAL CHIP	0	5%	1/16W
R108	1-216-845-11	METAL CHIP	100K	5%	1/16W
R109	1-216-837-11	METAL CHIP	22K	5%	1/16W
R110	1-216-821-11	METAL CHIP	1K	5%	1/16W
R201	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R202	1-216-833-11	METAL CHIP	10K	5%	1/16W
R203	1-216-833-11	METAL CHIP	10K	5%	1/16W
R204	1-216-842-11	METAL CHIP	56K	5%	1/16W
R205	1-216-833-11	METAL CHIP	10K	5%	1/16W
R206	1-216-842-11	METAL CHIP	56K	5%	1/16W
R207	1-216-833-11	METAL CHIP	10K	5%	1/16W
R208	1-216-842-11	METAL CHIP	56K	5%	1/16W
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W
R210	1-216-842-11	METAL CHIP	56K	5%	1/16W
R211	1-216-833-11	METAL CHIP	10K	5%	1/16W
R212	1-216-839-11	METAL CHIP	33K	5%	1/16W
R213	1-216-833-11	METAL CHIP	10K	5%	1/16W
R214	1-216-839-11	METAL CHIP	33K	5%	1/16W
R215	1-216-839-11	METAL CHIP	33K	5%	1/16W
R216	1-216-842-11	METAL CHIP	56K	5%	1/16W
R218	1-216-839-11	METAL CHIP	33K	5%	1/16W
R219	1-216-843-11	METAL CHIP	68K	5%	1/16W
R220	1-216-834-11	METAL CHIP	12K	5%	1/16W
R222	1-216-821-11	METAL CHIP	1K	5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
SW1	1-529-566-21	SWITCH, PUSH (1 KEY) (CHUCKING END DETECT)	
SW2	1-529-566-21	SWITCH, PUSH (1 KEY) (SAVE END DETECT)	
**********			
*	1-675-516-12	SWITCH BOARD	
		**********	
SW801	1-571-532-21	SWITCH, TACTIL (⏏)	
**********			
		MISCELLANEOUS	
		**********	
251	1-676-341-11	OP FLEXIBLE BOARD	
⚠255	8-820-103-05	OPTICAL PICK-UP KSS-720A/Q-RP	
M101	A-3315-151-A	SLED MOTOR ASSY (251)	
M102	A-3301-998-A	SPINDLE MOTOR (S) SUB ASSY	
M103	A-3301-123-A	ELJ MOTOR ASSY (CHUCKING)	
M104	A-3301-123-A	ELJ MOTOR ASSY (ELEVATOR)	
RV202	1-227-137-11	RES, VAR, SLIDE 10K (ELEVATOR HEIGHT SENSOR)	
**********			
		**********	
		HARDWARE LIST	
		**********	
#2	7-685-792-09	SCREW +PTT 2.6X6 (S)	
#3	7-685-781-09	SCREW +PTT 2X4 (S)	
#4	7-624-104-04	STOP RING 2.0, TYPE-E	
#5	7-627-554-07	SCREW, PRECISION +P 2X2.2	
#6	7-628-253-00	SCREW +PS 2X4	
#7	7-627-553-27	SCREW, PRECISION +P 2X2.5	
#8	7-624-102-04	STOP RING 1.5, TYPE-E	
#9	7-627-850-28	SCREW, PRECISION +P 1.4X3	
#10	7-627-000-00	SCREW, PRECISION +P1.7X2.2 TYPE 3	
#11	7-627-553-37	PRECISION SCREW +P 2X3 TYPE 3	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-225-284-11	MANUAL, INSRTUCTION (ENGLISH, FRENCH, SPANISH, TRADITIONAL CHINESE)	
	3-225-284-21	MANUAL, INSRTUCTION (ENGLISH, FRENCH, GERMAN, DUTCH, ITALIAN) (646)	
	3-225-284-31	MANUAL, INSRTUCTION (SPANISH, SWEDISH, PORTUGUESE, POLISH, RUSSIAN, GREEK) (646)	
	A-3301-944-A	MAGAZINE (250T) ASSY	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		PARTS FOR INSTALLATION AND CONNECTIONS	
		**********	
501	3-040-583-21	BRACKET (T)	
* 502	X-3369-824-1	SCREW ASSY	
503	1-590-874-11	CORD, CONNECTION (RCA PIN CORD 5.5m)	
504	1-590-519-21	CORD (WITH CONNECTOR) (BUS CABLE 5.5m)	



MEMO

CDX-646/646X

SONY

SERVICE MANUAL

Ver 1.1 2001.07

US Model
Canadian Model
AEP Model
UK Model
CDX-646
E Model
CDX-646/646X

SUPPLEMENT-1

File this supplement with the service manual.

Subject: Change of Mechanism Deck (MG-251B-137)

(ENG-01008)

The mechanism deck was changed from MG-251A-137 to MG-251B-137.
At the same time, MAIN, SWITCH and JACK boards were been changed.
This supplement contains only a new type mechanism deck and boards.

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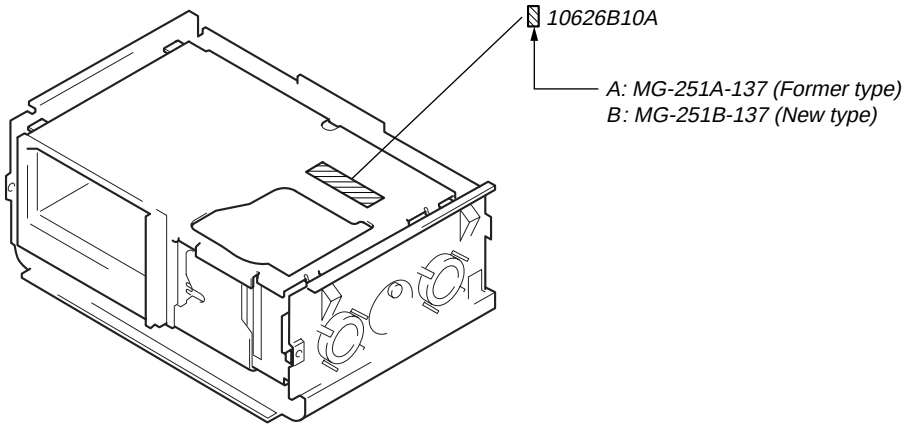
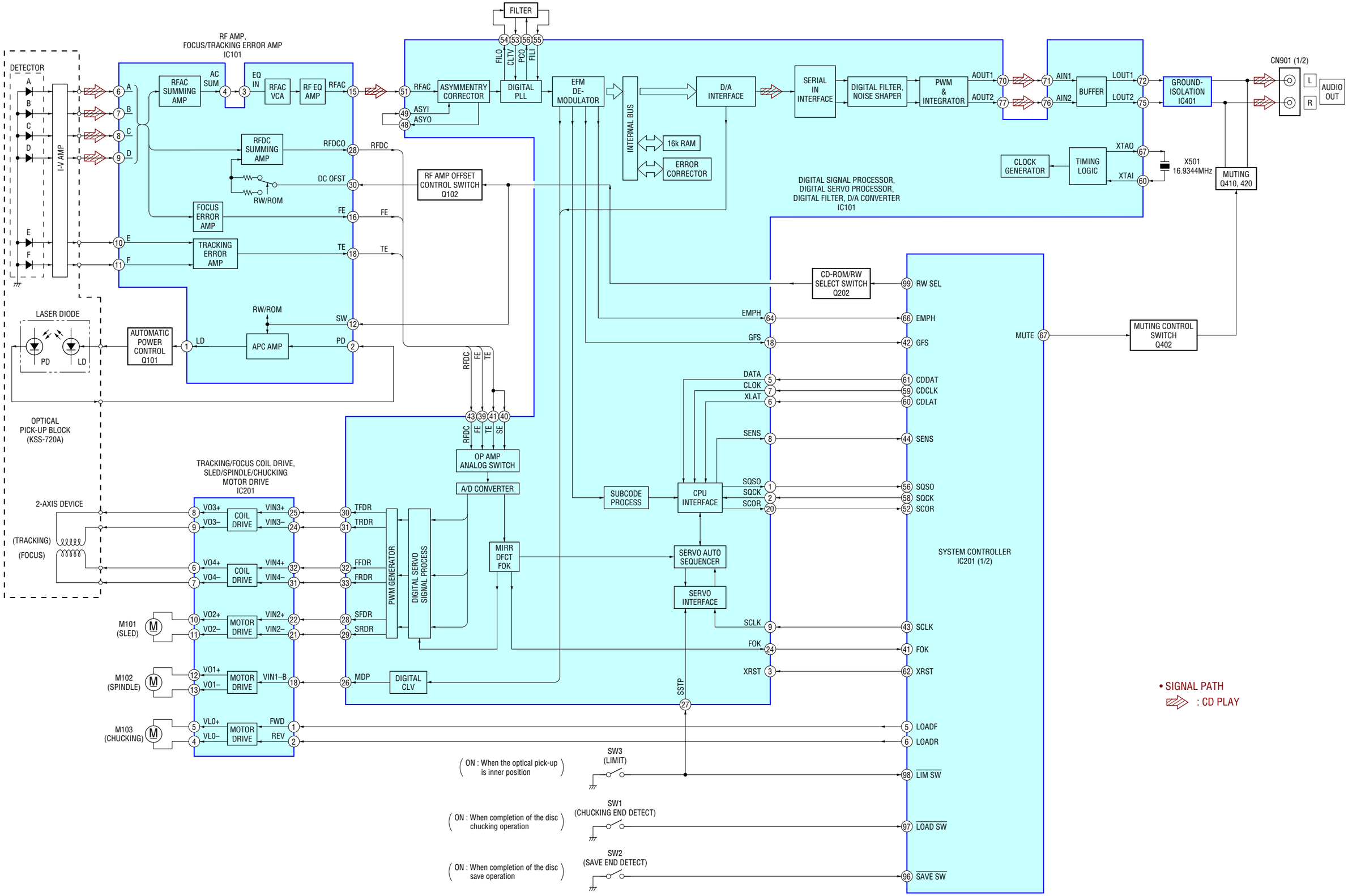
1. NEW/FORMER TYPE DISCRIMINATION

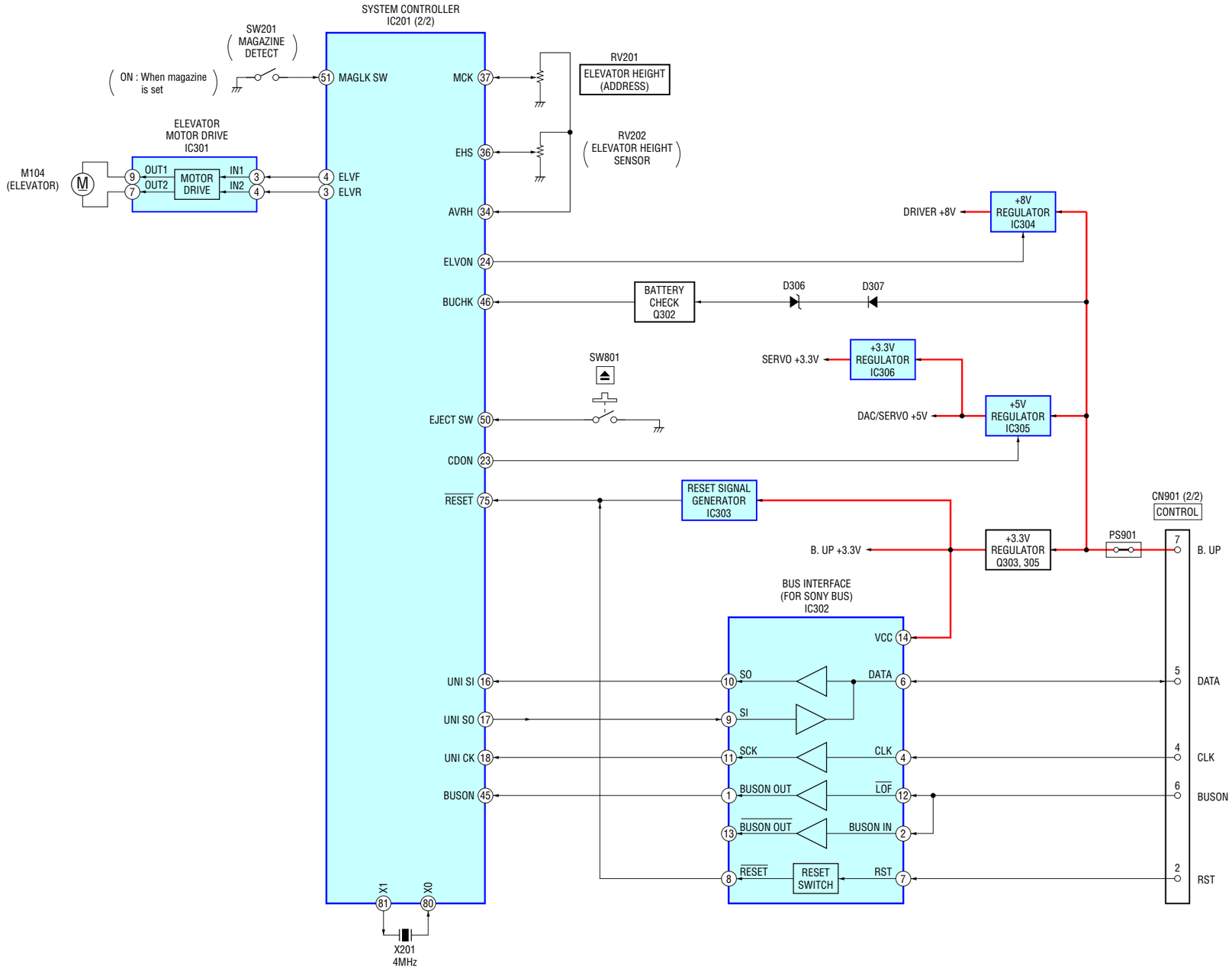


2. DIAGRAMS

2-1. BLOCK DIAGRAM – SERVO Section –



2-2. BLOCK DIAGRAM – BUS CONTROL/POWER SUPPLY Section –



2-3. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:
- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▬ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

Note on Schematic Diagram:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

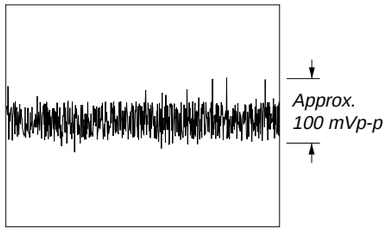
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from CD changer controller.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : CD PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD PLAY

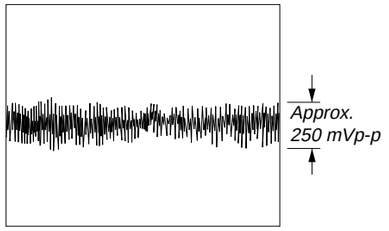
• Waveforms

– RF Board –

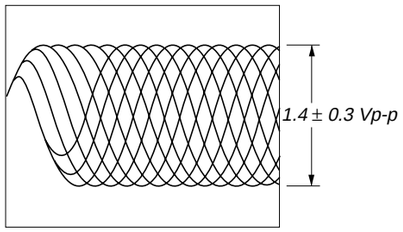
❶ IC101 ⑯ (FE) (CD play mode)



❷ IC101 ⑱ (TE) (CD play mode)

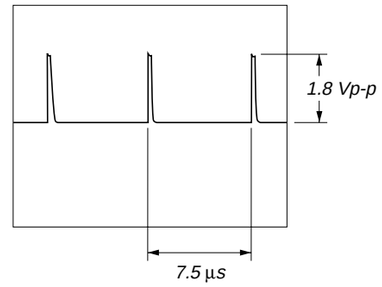


❸ IC101 ⑮ (RFAC) (CD play mode)

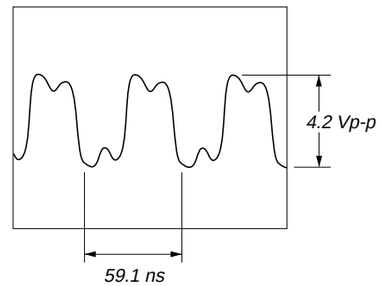


– MAIN Board –

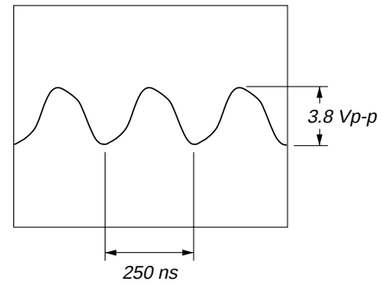
❶ IC101 ㉖ (MDP) (CD play mode)



❷ IC101 ㊼ (XTAO) (CD play mode)



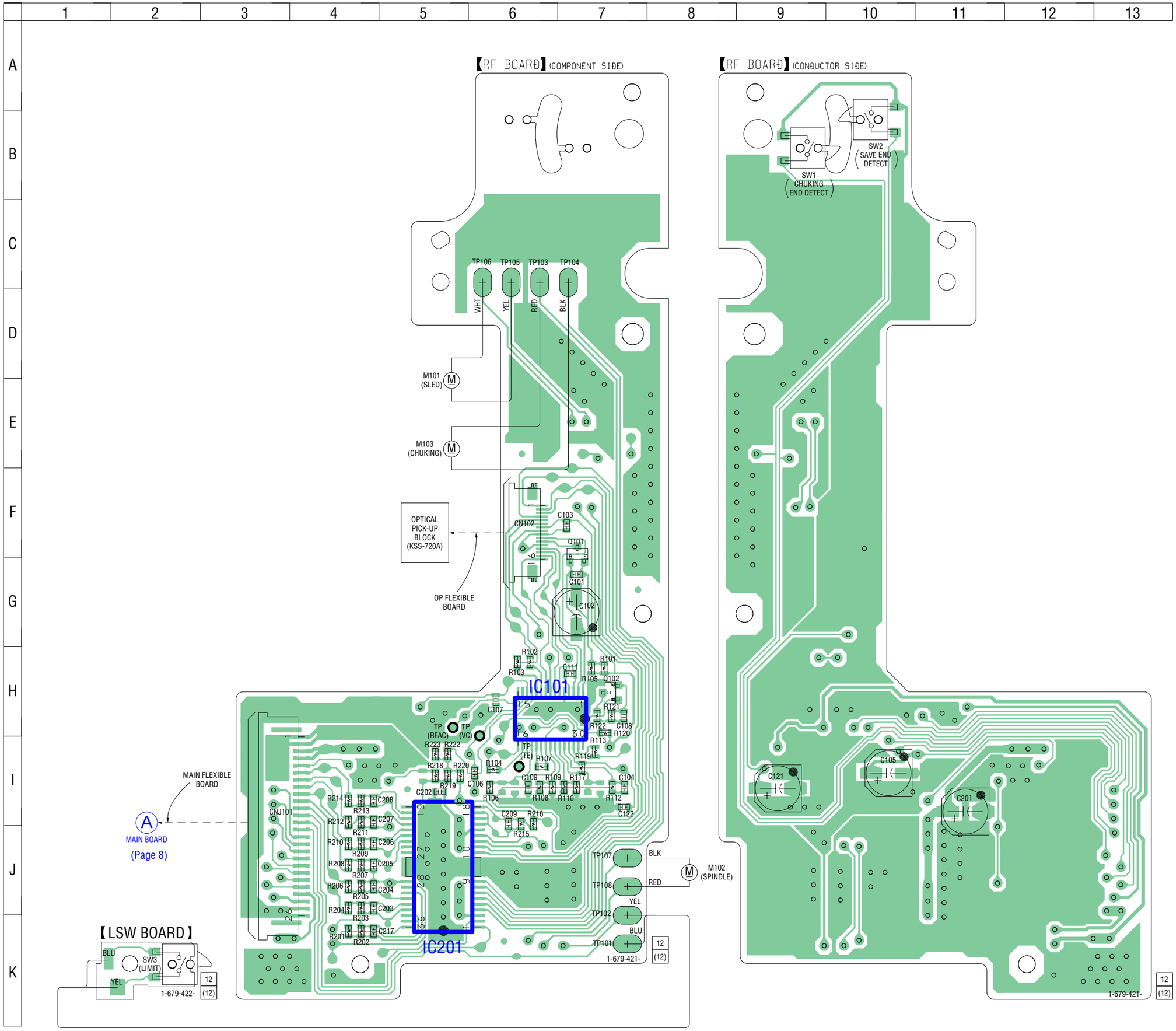
❸ IC201 ㊶ (X1) (CD play mode)



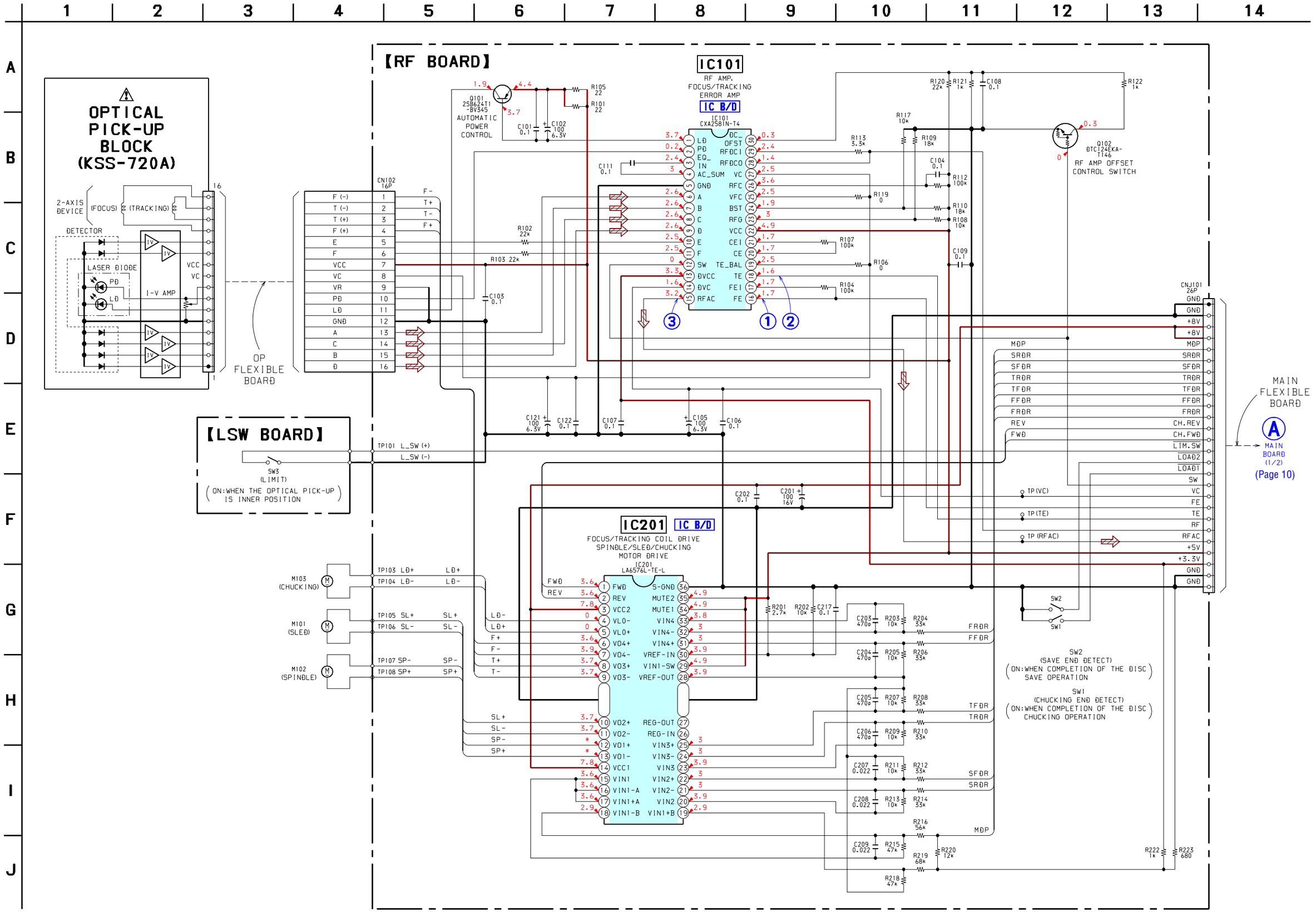
2-4. PRINTED WIRING BOARDS – RF/LSW Boards –

- **Semiconductor Location**

Ref. No.	Location
IC101	H-6
IC201	J-5
Q101	F-7
Q102	H-7



2-5. SCHEMATIC DIAGRAM – RF/LSW Boards – • See page 5 for for Waveforms. • See page 13 for IC Block Diagrams.

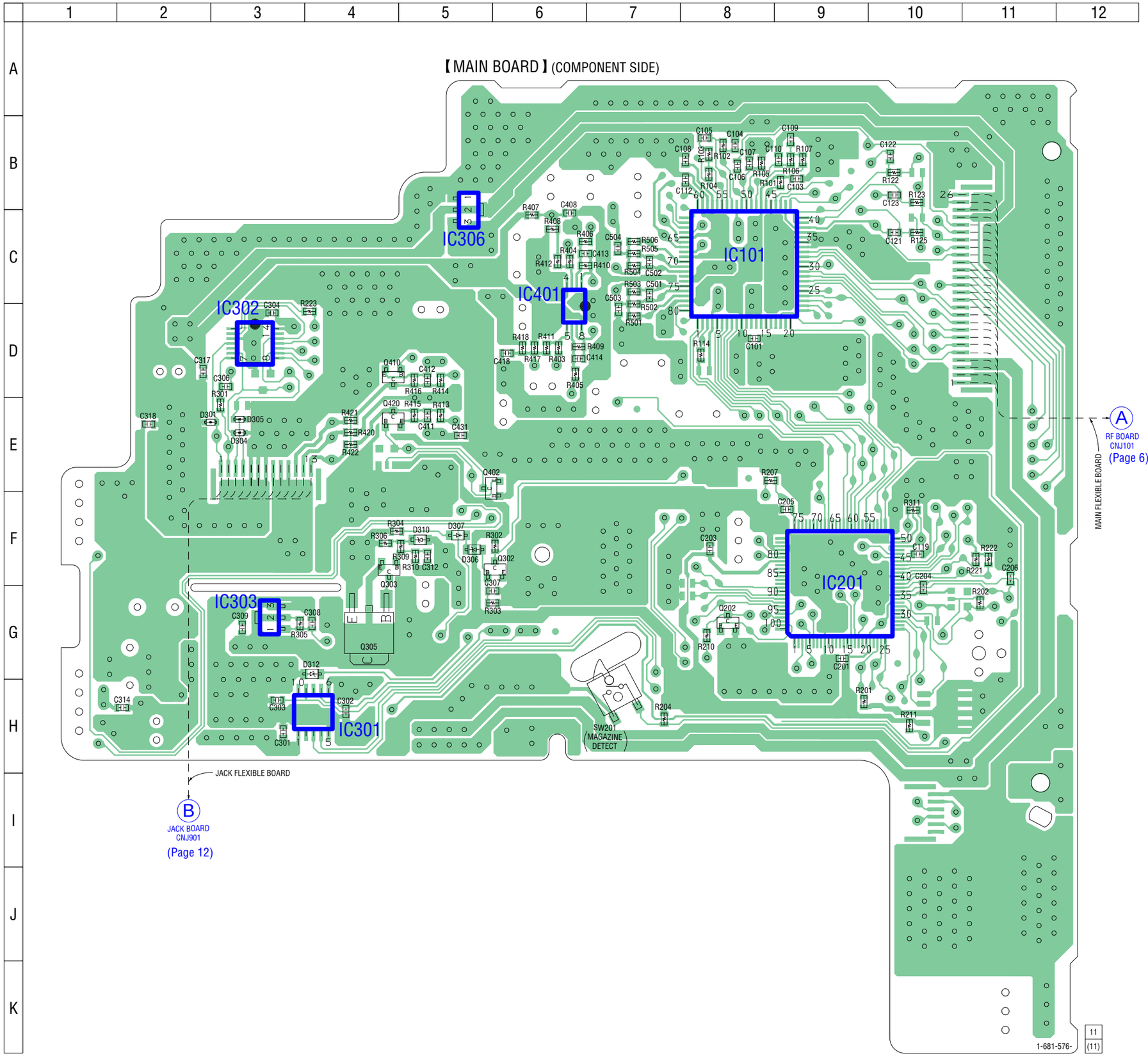


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

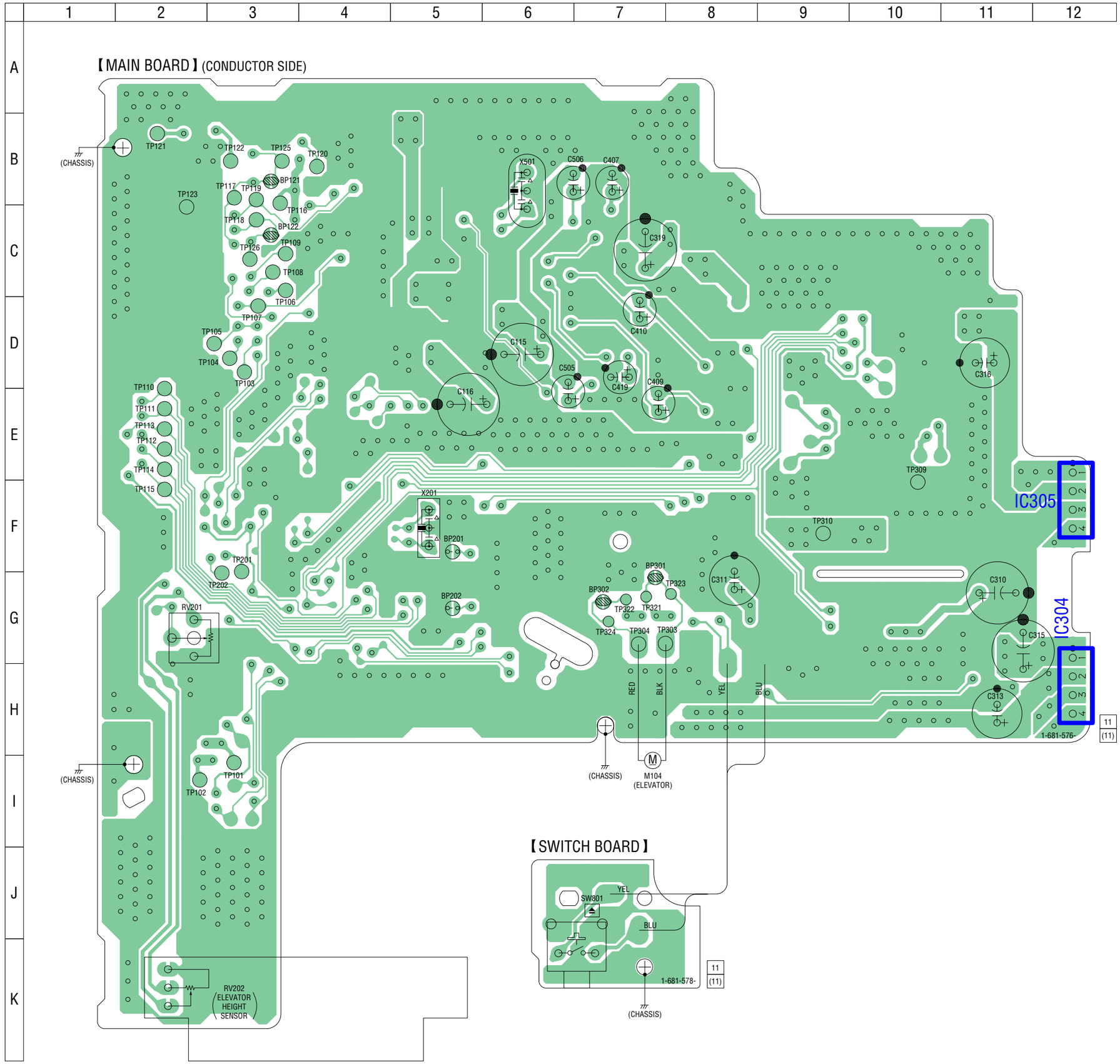
2-6. PRINTED WIRING BOARDS – MAIN Board (Component Side) –

- **Semiconductor Location**

Ref. No.	Location
D301	E-2
D304	E-3
D305	E-3
D306	F-5
D307	F-5
D310	F-5
D312	G-4
IC101	C-8
IC201	F-9
IC301	H-4
IC302	D-3
IC303	G-3
IC306	C-5
IC401	C-6
Q202	G-8
Q302	F-6
Q303	F-4
Q305	G-4
Q402	F-6
Q410	D-4
Q420	E-4



2-7. PRINTED WIRING BOARDS – MAIN (Conductor Side)/SWITCH Boards –

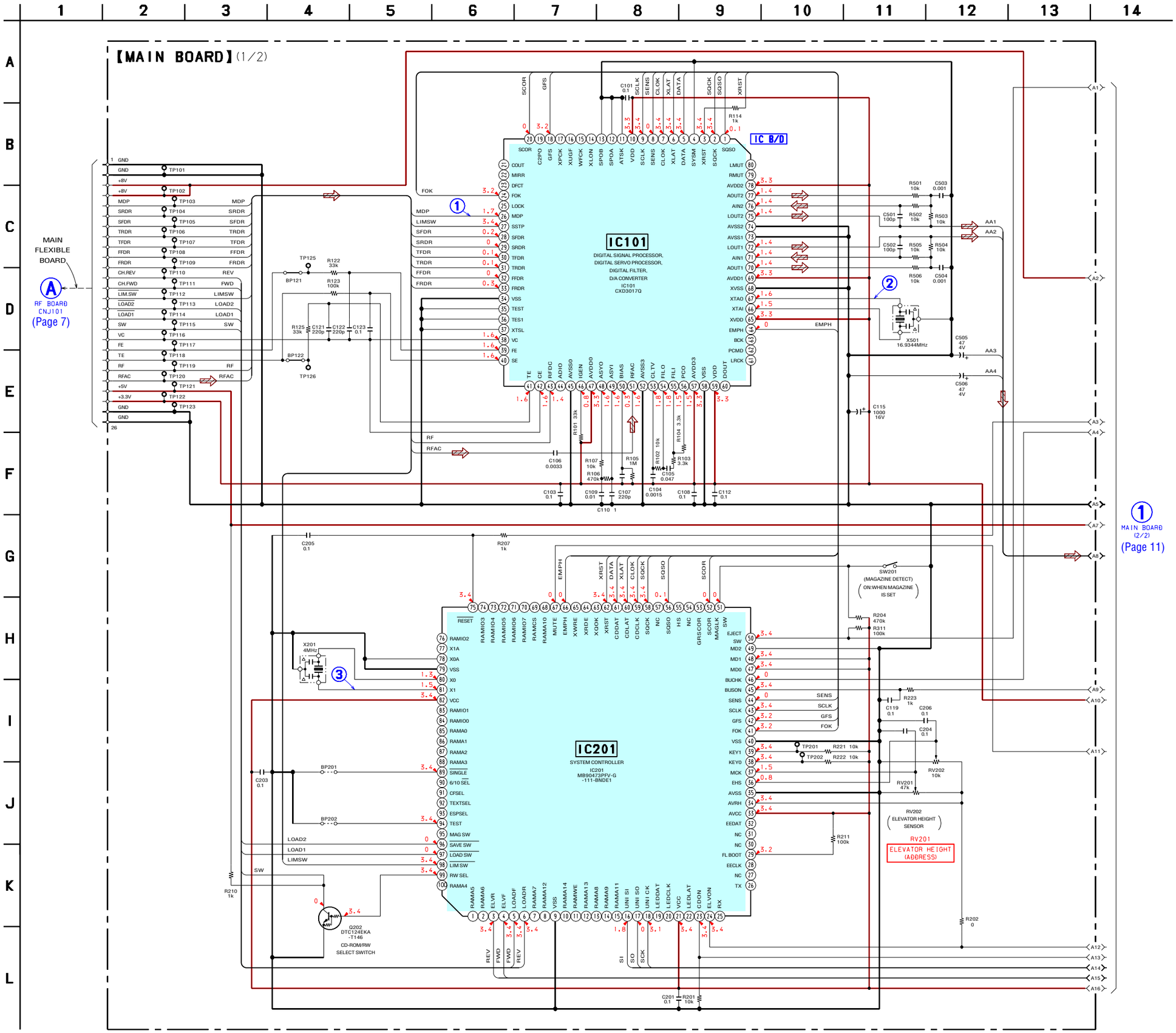


- **Semiconductor Location**

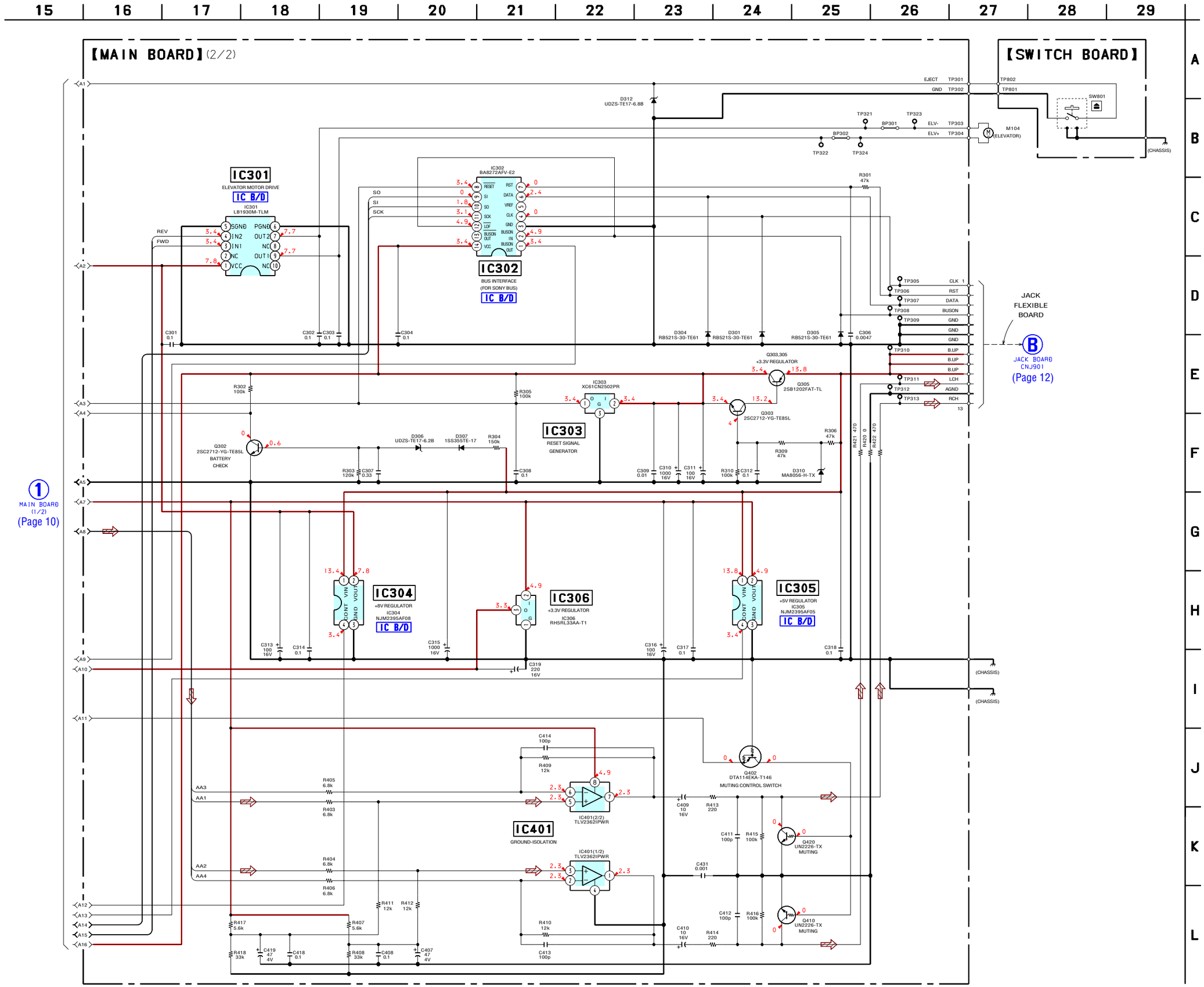
Ref. No.	Location
IC304	H-12
IC305	F-12

2-8. SCHEMATIC DIAGRAM – MAIN Board (1/2) –

• See page 5 for for Waveforms. • See page 13 for IC Block Diagram.

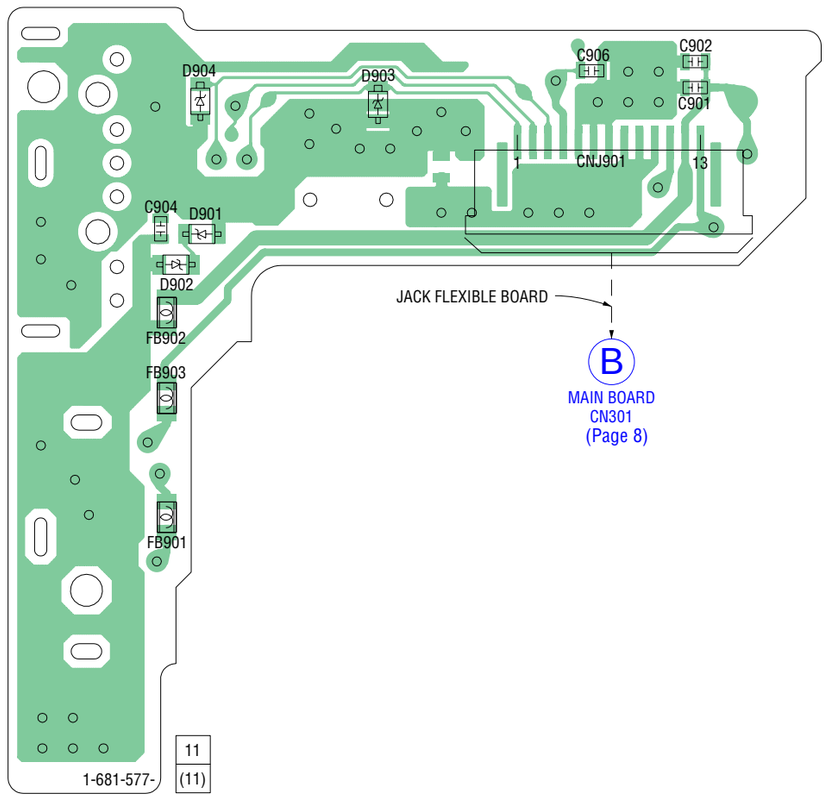


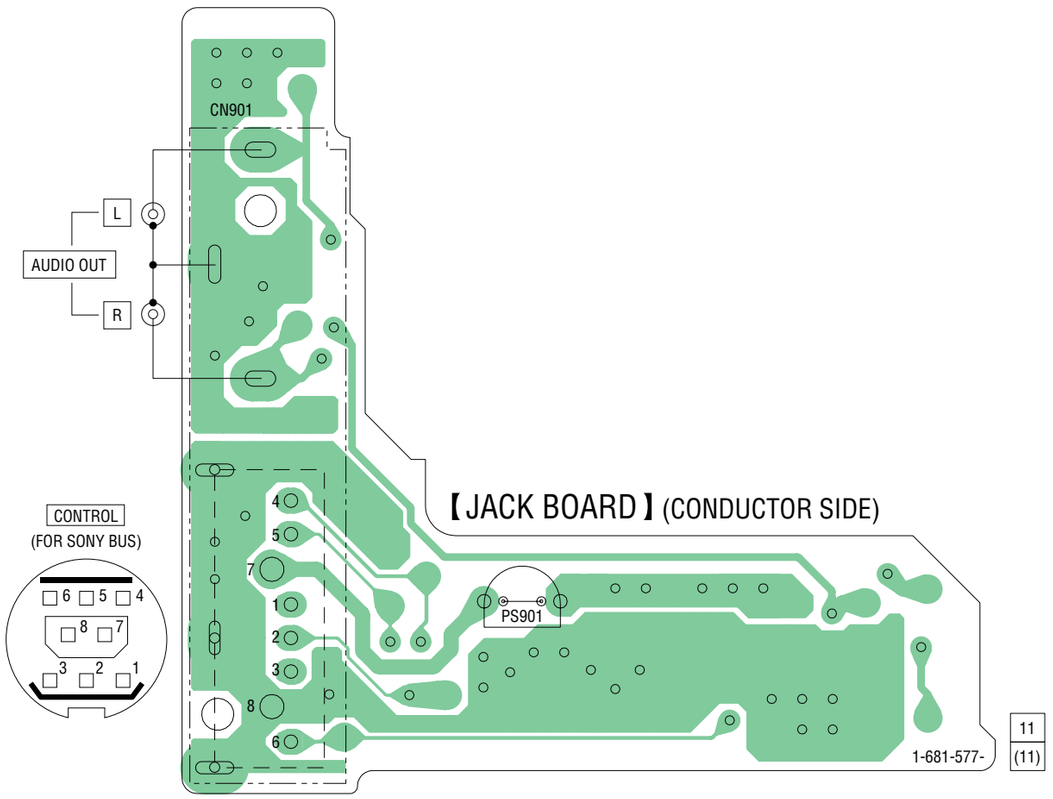
2-9. SCHEMATIC DIAGRAM – MAIN (2/2)/SWITCH Boards – • See page 13 for IC Block Diagrams.



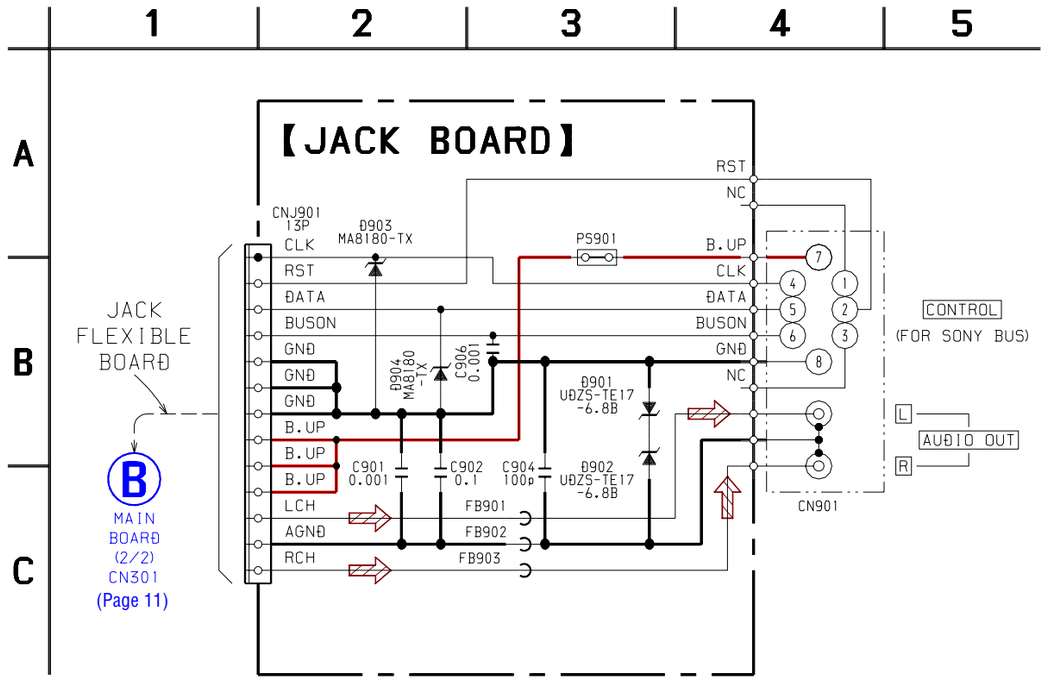
2-10. PRINTED WIRING BOARDS – JACK Board –

【JACK BOARD】(COMPONENT SIDE)



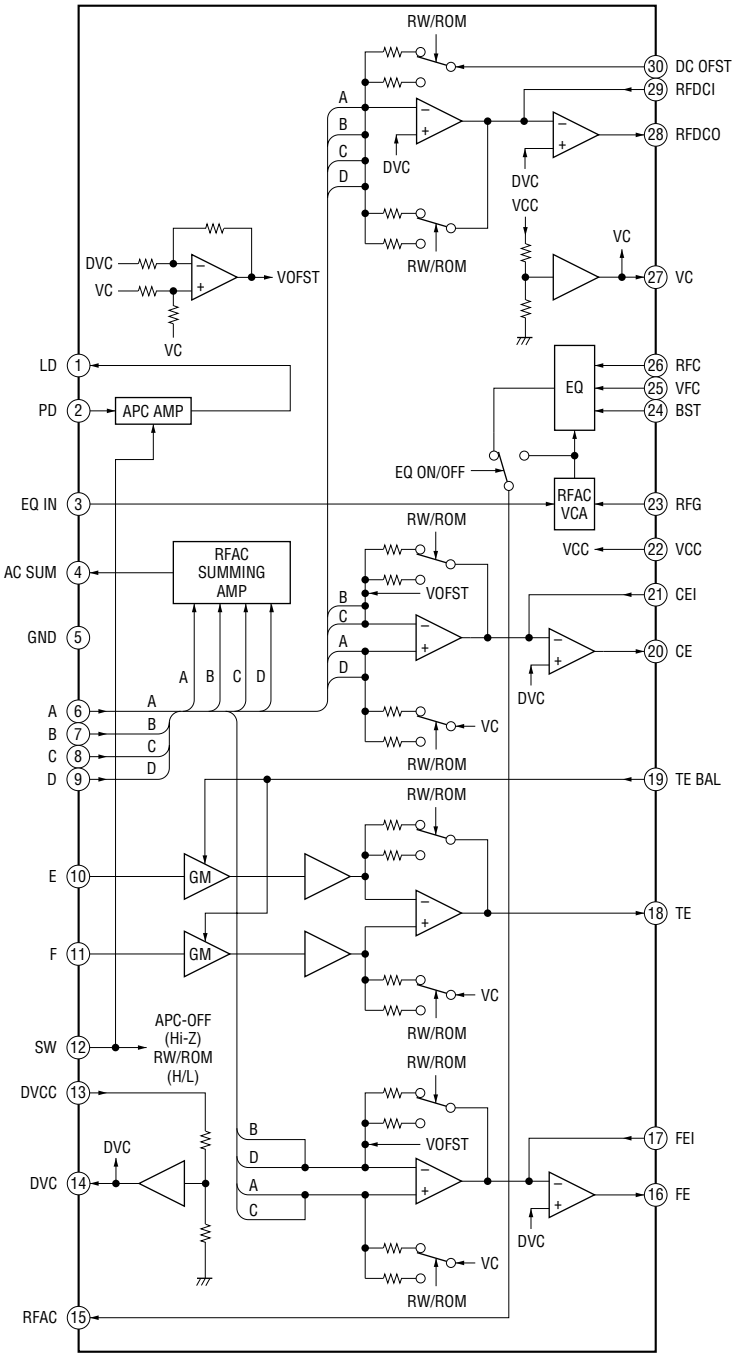


2-11. SCHEMATIC DIAGRAM – JACK Board –

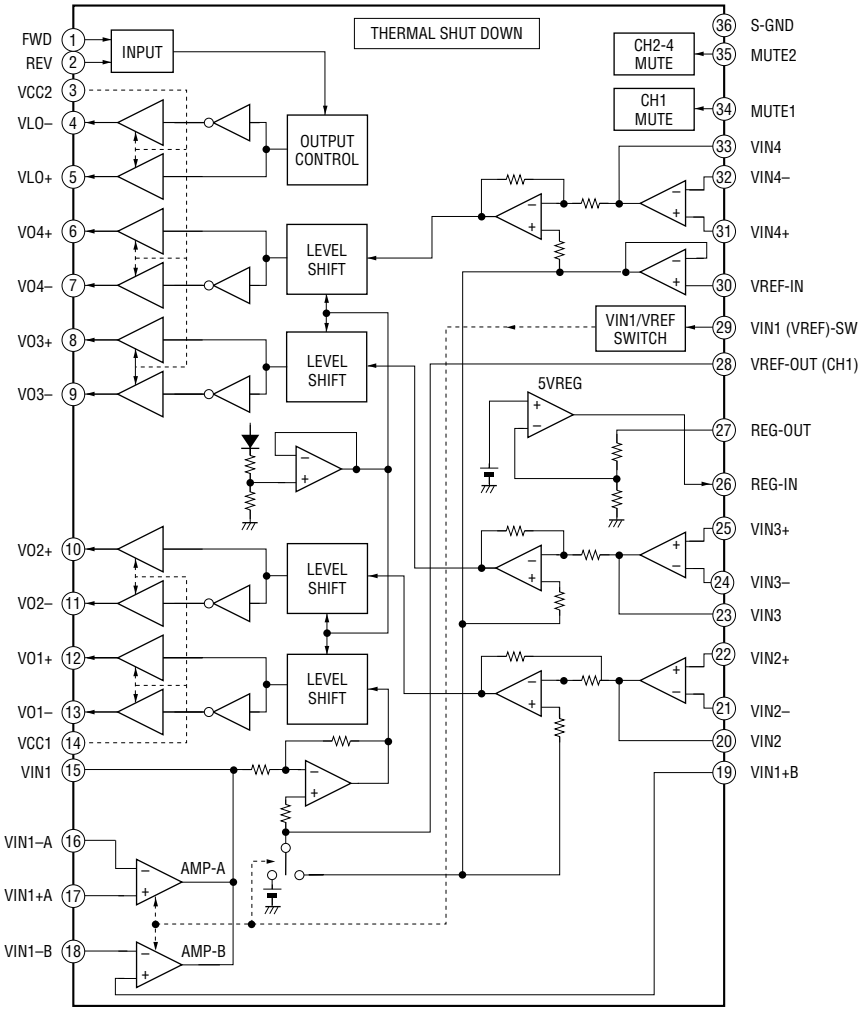


• **IC Block Diagrams**
– RF Board –

IC101 CXA2581N-T4

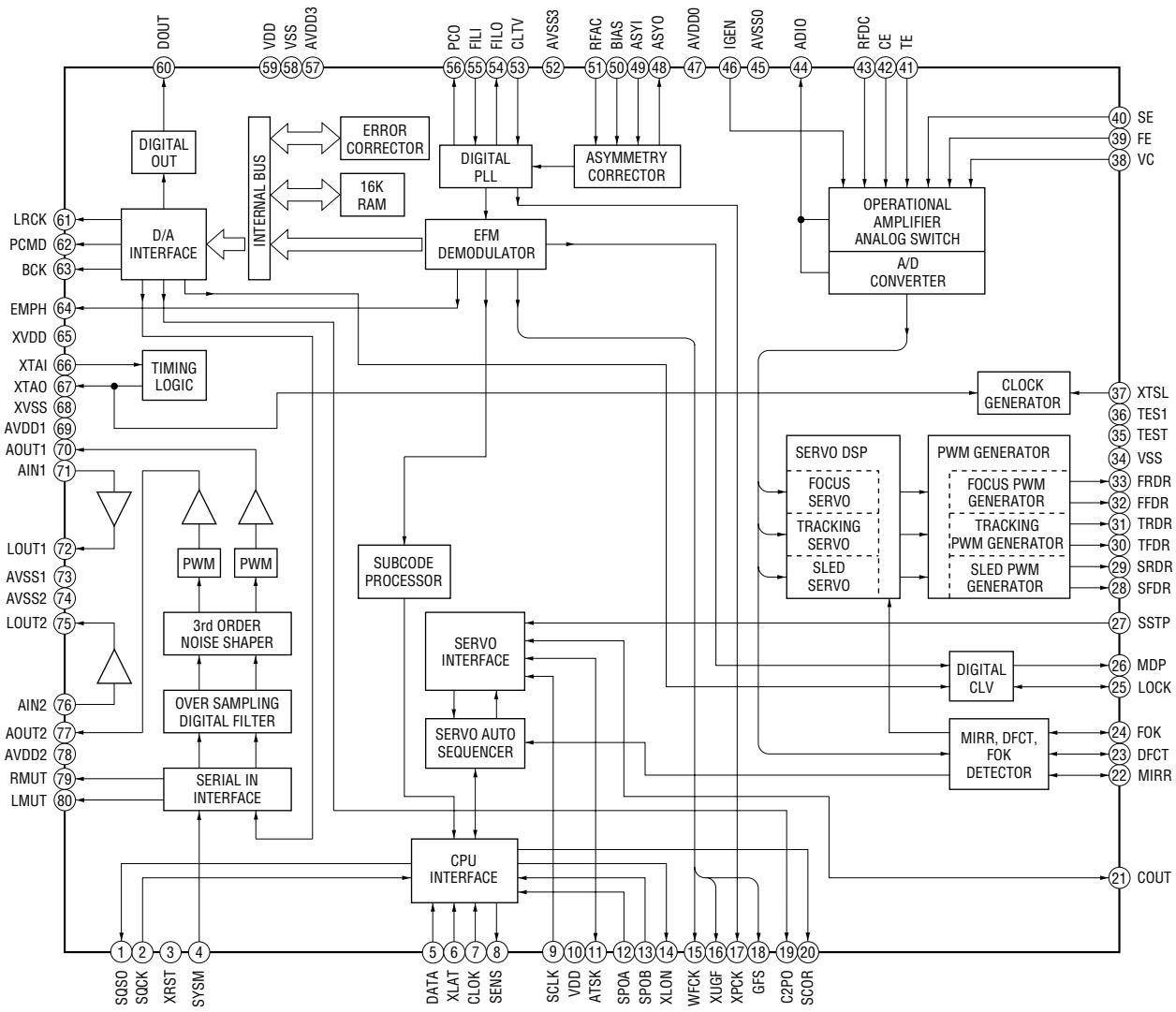


IC201 LA6576L-TE-L

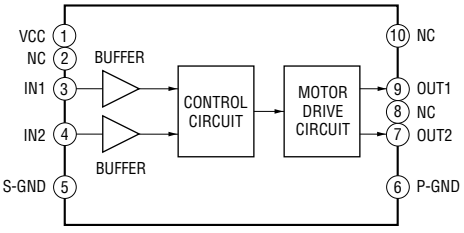


– MAIN Board –

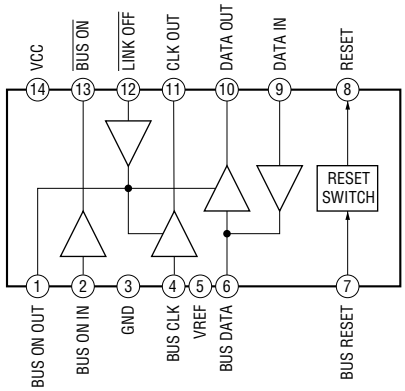
IC101 CXD3017Q



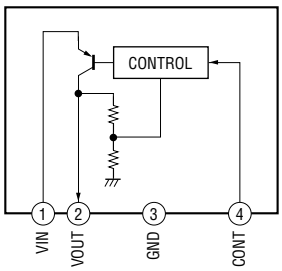
IC301 LB1930M-TLM



IC302 BA8272AFV-E2



IC304 NJM2395AF08
IC305 NJM2395AF05



2-12. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC201 MB90473PFV-G-111-BNDE1 (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1, 2	RAMA5, RAMA6	O	Address signal output to the S-RAM Not used (open)
3	ELVR	O	Motor drive signal (elevator down direction) output to the elevator motor drive (IC301) *1
4	ELVF	O	Motor drive signal (elevator up direction) output to the elevator motor drive (IC301) *1
5	LOADF	O	Motor drive signal (load chucking direction) output to the chucking motor drive (IC201) *2
6	LOADR	O	Motor drive signal (save direction) output to the chucking motor drive (IC201) *2
7, 8	RAMA7, RAMA12	O	Address signal output to the S-RAM Not used (open)
9	VSS	—	Ground terminal
10	RAMA14	O	Address signal output to the S-RAM Not used (open)
11	RAMWE	O	Write enable output to the S-RAM Not used (open)
12 to15	RAMA13, RAMA8, RAMA9, RAMA11	O	Address signal output to the S-RAM Not used (open)
16	UNI SI	I	Serial data input from the SONY bus interface (IC302)
17	UNI SO	O	Serial data output to the SONY bus interface (IC302)
18	UNI CK	I	Serial data transfer clock signal input from the SONY bus interface (IC302)
19	LEDDAT	O	Not used (open)
20	LEDCLK	O	Not used (open)
21	VCC	—	Power supply terminal (+3.3V)
22	LEDLAT	O	Not used (open)
23	CDON	O	D/A converter and servo section power supply on/off control signal output “H”: power on
24	ELVON	O	Mechanism deck section power supply on/off control signal output “H”: power on
25	RX	I	Input terminal at the flash memory data write mode Not used (open)
26	TX	O	Output terminal at the flash memory data write mode Not used (open)
27	NC	O	Not used (open)
28	EECLK	O	Serial data transfer clock signal output to the EEPROM Not used (open)
29	FL BOOT	I	Flash memory data write control signal input terminal “L” active Not used (fixed at “H”)
30, 31	NC	O	Not used (open)
32	EEDAT	I/O	Two-way data bus with the EEPROM Not used (open)
33	AVCC	—	Power supply terminal (+3.3V) (for A/D converter)
34	AVRH	I	Reference voltage (+3.3V) input terminal (for A/D converter)
35	AVSS	—	Ground terminal (for A/D converter)
36	EHS	I	Elevator height position detection signal input from the RV202 (elevator height sensor) (A/D input)
37	MCK	I	Input of detection signal for the fine adjustment (elevator height (address) adjustment; RV201) of elevator height position (A/D input)
38, 39	KEY0, KEY1	I	Not used (fixed at “H”)
40	VSS	—	Ground terminal
41	FOK	I	Focus OK signal input from the CXD3017Q (IC101) “L”: NG, “H”: OK
42	GFS	I	Guard frame sync signal input from the CXD3017Q (IC101) “L”: NG, “H”: OK
43	SCLK	O	Serial data reading clock signal output to the CXD3017Q (IC101)
44	SENS	I	Internal status signal (sense signal) input from the CXD3017Q (IC101)
45	BUSON	I	Bus on/off control signal input from the SONY bus interface (IC302) “H”: bus on
46	BUCHK	I	Battery detection signal input “L”: battery on
47, 48	MD0, MD1	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
49	MD2	I	Setting terminal for the CPU operational mode (fixed at “L” in this set)
50	EJECT SW	I	Eject switch (SW801) input terminal “L” active
51	MAGLK SW	I	Magazine detect switch (SW201) input terminal “L”: magazine is set

Pin No.	Pin Name	I/O	Description
52	SCOR	I	Subcode sync (S0+S1) detection signal input from the CXD3017Q (IC101)
53	GRSCOR	I	Subcode sync (S0+S1) detection signal input terminal Not used (open)
54	NC	O	Not used (open)
55	HS	O	Normal/high speed playback control signal output terminal "L": high speed playback Not used (open)
56	SQSO	I	Subcode Q data input from the CXD3017Q (IC101)
57	NC	O	Not used (open)
58	SQCK	O	Subcode Q data reading clock signal output to the CXD3017Q (IC101)
59	CDCLK	O	Serial data transfer clock signal output to the CXD3017Q (IC101)
60	CDLAT	O	Serial data latch pulse signal output to the CXD3017Q (IC101)
61	CDDAT	O	Serial data output to the CXD3017Q (IC101)
62	XRST	O	System reset signal output to the CXD3017Q (IC101) "L": reset
63	XQOK	O	Subcode Q OK pulse signal output terminal Not used (open)
64	XRDE	O	D-RAM read enable signal output terminal Not used (open)
65	XWRE	O	D-RAM write enable signal output terminal Not used (open)
66	EMPH	O	Emphasis control signal output to the CXD3017Q (IC101) "H": emphasis on
67	MUTE	O	Audio line muting on/off control signal output "H": muting on
68	RAMA10	O	Address signal output to the S-RAM Not used (open)
69	RAMCS	O	Chip select enable output to the S-RAM Not used (open)
70 to 74	RAMIO7 to RAMIO3	I/O	Two-way data bus with the S-RAM Not used (open)
75	$\overline{\text{RESET}}$	I	System reset signal input from the SONY bus interface (IC302) and reset signal generator (IC303) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
76	RAMIO2	I/O	Two-way data bus with the S-RAM Not used (open)
77	X1A	O	Sub system clock output terminal Not used (open)
78	X0A	I	Sub system clock input terminal Not used (fixed at "L")
79	VSS	—	Ground terminal
80	X0	I	Main system clock input terminal (4 MHz)
81	X1	O	Main system clock output terminal (4 MHz)
82	VCC	—	Power supply terminal (+3.3V)
83, 84	RAMIO1, RAMIO0	I/O	Two-way data bus with the S-RAM Not used (open)
85 to 88	RAMA0 to RAMA3	O	Address signal output to the S-RAM Not used (open)
89	$\overline{\text{SINGLE}}$	I	Setting terminal for the single disc/multiple discs mode "L": single disc mode, "H": multiple discs mode (fixed at "H")
90	6/$\overline{10}$ SEL	I	Setting terminal for the 6 discs changer/10 discs changer model "L": 10 discs changer model, "H": 6 discs changer model Not used (open)
91	CFSEL	I	Custom file on/off setting terminal "L": custom file on Not used (fixed at "H")
92	TEXTSEL	I	CD text mode setting terminal "L": CD text on, "H": does not display track name Not used (fixed at "H")
93	ESPSEL	I	ESP mode setting terminal "L": ESP on Not used (open)
94	TEST	I	Test on/off setting terminal "L": test mode Not used (fixed at "H")
95	MAG SW	I	Magazine in/out detect switch input terminal Not used (open)
96	$\overline{\text{SAVE SW}}$	I	Save end detect switch (SW2) input terminal "L": When completion of the disc save operation
97	$\overline{\text{LOAD SW}}$	I	Chucking end detect switch (SW1) input terminal "L": When completion of the disc chucking operation

Pin No.	Pin Name	I/O	Description
98	$\overline{\text{LIM SW}}$	I	Sled limit in detect switch (SW3) input terminal "L": When the optical pick-up is inner position
99	RW SEL	O	CD-ROM/RW selection signal output "L": CD-RW, "H": CD-ROM
100	RAMA4	O	Address signal output to the S-RAM Not used (open)

*1 elevator motor (M104) control

Mode / Terminal	STOP	ELEVATOR UP	ELEVATOR DOWN	BRAKE
ELVF (pin ④)	"L"	"L"	"H"	"H"
ELVR (pin ③)	"L"	"H"	"L"	"H"

*2 chucking motor (M103) control

Mode / Terminal	STOP	LOAD CHUCKING	SAVE	BRAKE
LOADF (pin ⑤)	"L"	"L"	"H"	"H"
LOADR (pin ⑥)	"L"	"H"	"L"	"H"

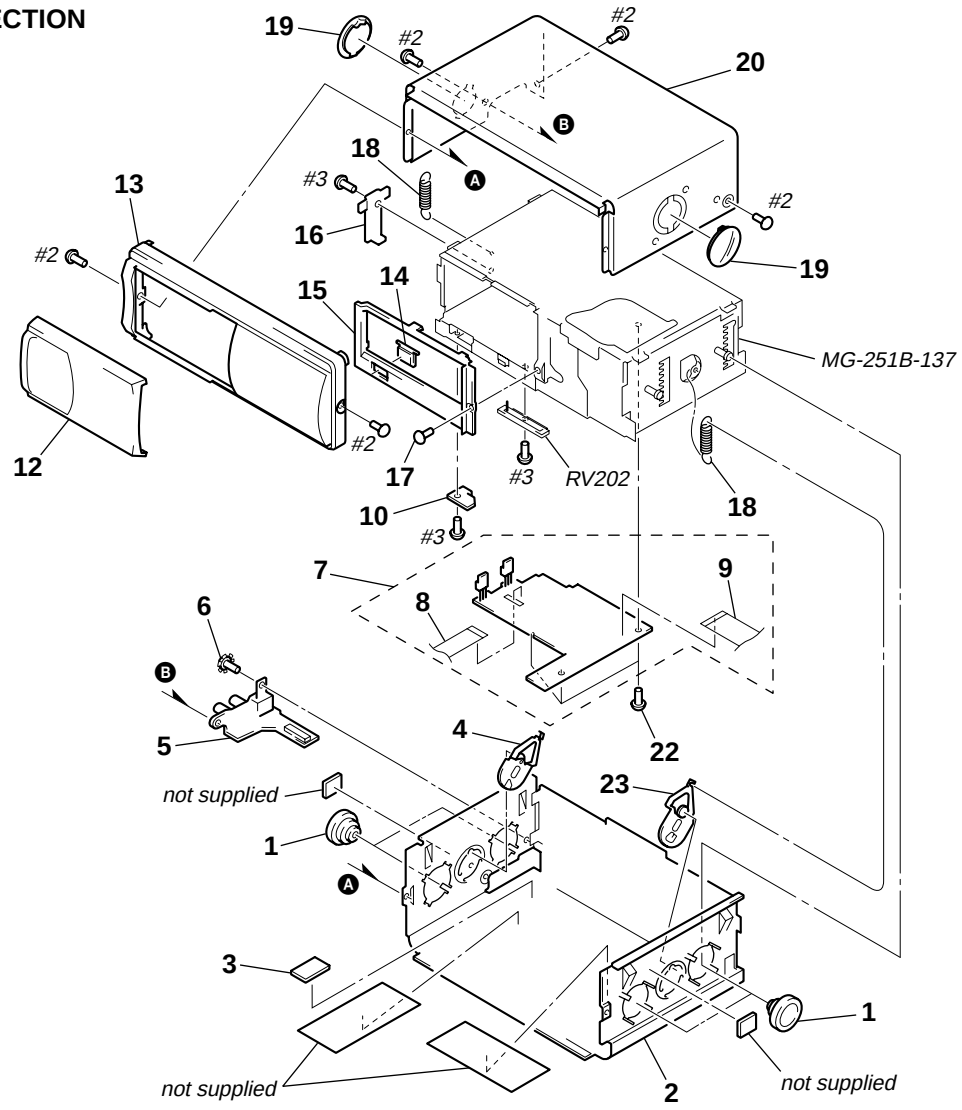
3. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

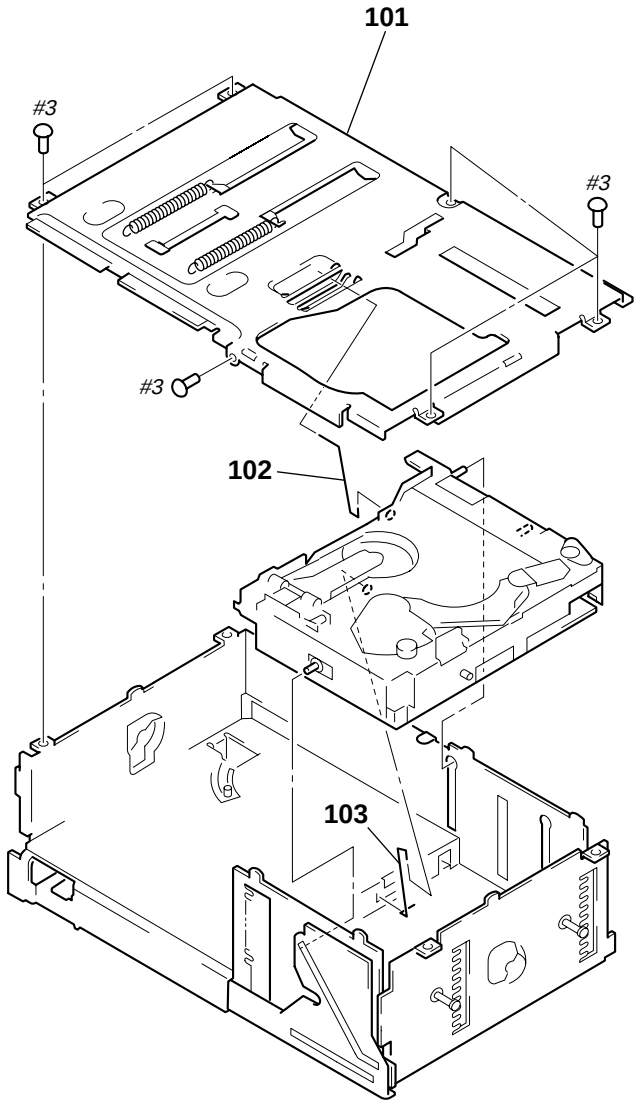
3-1. CASE SECTION



Ref. No.	Part No.	Description	Remark
1	3-047-852-01	DAMPER (T)	
2	3-045-543-81	CASE (LOWER. T)	
* 3	3-024-065-01	CUSHION (EJECT-T)	
4	X-3375-357-1	ARM (FLT) ASSY	
5	1-681-577-11	JACK BOARD	
6	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
7	A-3283-194-A	MAIN BOARD, COMPLETE	
8	1-676-340-12	JACK FLEXIBLE BOARD	
9	1-676-339-12	MAIN FLEXIBLE BOARD	
10	1-681-578-11	SWITCH BOARD	
12	X-3379-707-1	DOOR (L) ASSY (646)	
12	X-3380-045-1	DOOR (L) ASSY (646X)	

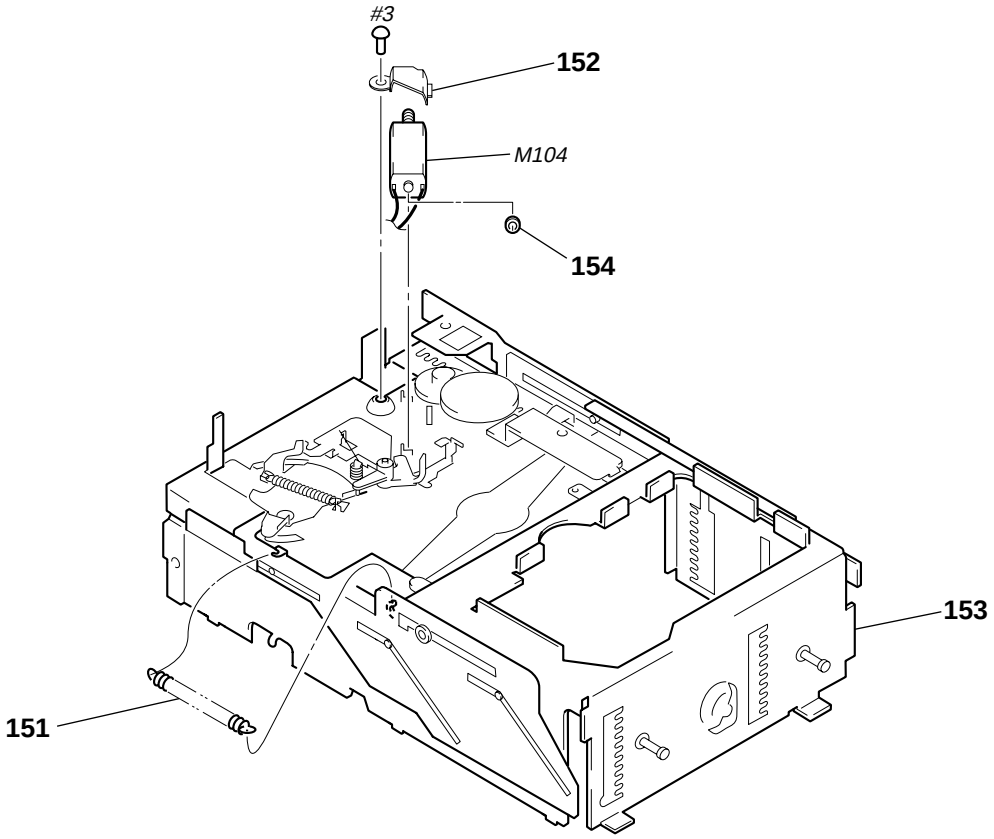
Ref. No.	Part No.	Description	Remark
13	3-224-392-01	PANEL (L), FRONT (646)	
13	3-224-392-11	PANEL (L), FRONT (646X)	
14	3-022-007-02	BUTTON (EJT) (⏏)	
15	3-041-218-21	ESCUTCHEON (T)	
* 16	3-022-012-01	HEAT SINK (T)	
17	3-042-244-11	SCREW (T)	
18	3-038-166-01	SPRING (FL), TENSION COIL	
19	3-047-886-11	LEVER (FLT. 838)	
20	3-046-160-81	CASE (UPPER. T)	
22	3-935-636-11	SCREW (FP)	
23	X-3375-360-2	ARM (FRT) ASSY	
RV202	1-227-137-11	RES, VAR, SLIDE 10K (ELEVATOR HEIGHT SENSOR)	

3-2. MECHANISM DECK SECTION-1 (MG-251B-137)



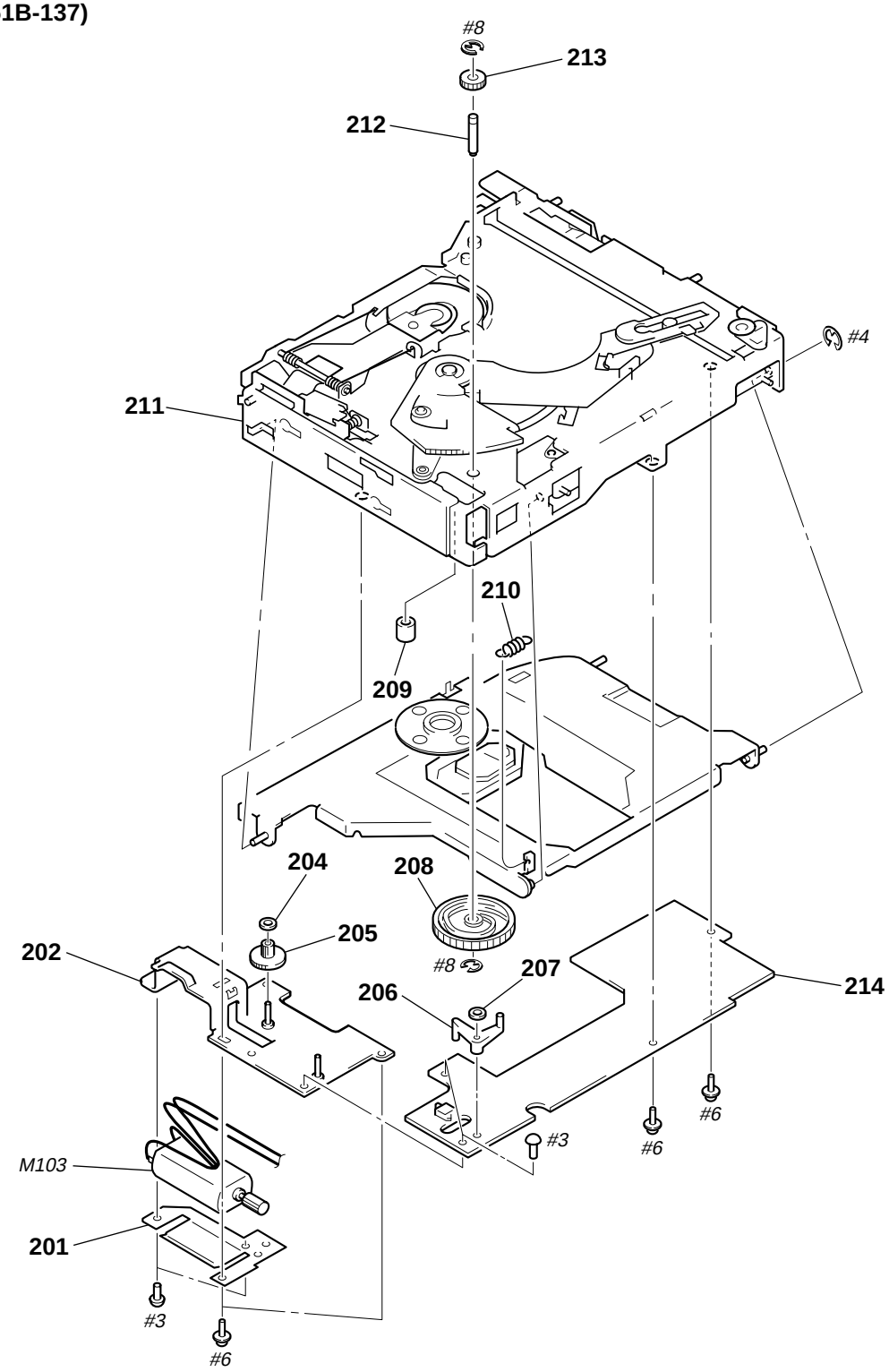
Ref. No.	Part No.	Description	Remark
101	X-3378-091-1	CHASSIS (U. S) SUB ASSY	
102	3-024-161-01	SPRING (SUT)	
103	3-011-997-01	SPRING (STOPPER. LOWER)	

3-3. MECHANISM DECK SECTION-2 (MG-251B-137)



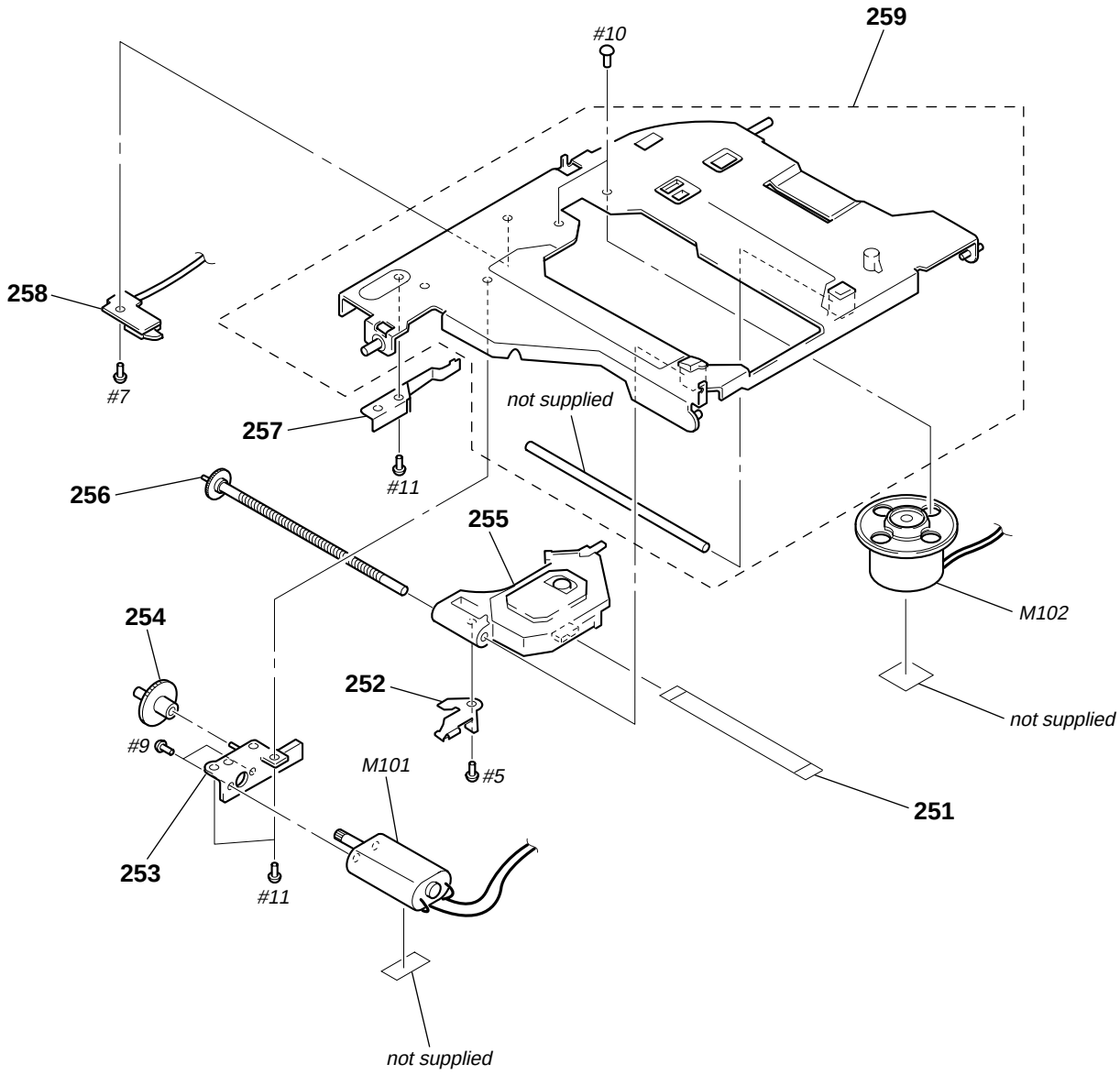
Ref. No.	Part No.	Description	Remark
151	3-024-170-01	SPRING (SB), TENSION	
* 152	3-040-790-02	BRACKET (EVM. S)	
153	X-3378-092-6	CHASSIS (D. S) SUB ASSY	
* 154	3-014-685-01	SPACER (MO)	
M104	A-3301-123-A	ELJ MOTOR ASSY (ELEVATOR)	

3-4. MECHANISM DECK SECTION-3 (MG-251B-137)



Ref. No.	Part No.	Description	Remark
* 201	3-024-150-01	RETAINER (CHM)	
* 202	X-3378-080-1	BRACKET (CHM. D) ASSY	
204	3-321-813-01	WASHER, COTTER POLYETHYLENE	
205	3-017-139-01	GEAR (WORM LOAD A)	
206	3-022-839-02	ARM (NSW)	
207	3-573-936-00	STOPPER, REEL	
208	X-3373-552-1	GEAR (LOAD CAM) ASSY	
209	3-010-252-11	ROLLER (CRE)	
210	3-010-268-01	SPRING (DH), TENSION	
* 211	A-3290-194-L	MAIN ASSY, CHASSIS (EVY)	
212	3-010-254-11	SHAFT (ROTARY PREVENTION C)	
213	3-010-253-01	GEAR (LOMINI)	
* 214	A-3326-947-A	RF BOARD, COMPLETE	
M103	A-3301-123-A	ELJ MOTOR ASSY (CHUCKING)	

3-5. MECHANISM DECK SECTION-4 (MG-251B-137)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
251	1-676-341-11	OP FLEXIBLE BOARD	
252	3-025-743-01	SPRING (FEED), LEAF	
253	X-3378-101-1	HOLDER (SLED. S) ASSY	
254	3-931-832-01	GEAR (SL MIDWAY)	
⚠255	8-820-103-11	OPTICAL PICK-UP KSS-720A/C-RP	
256	A-3291-669-A	SHAFT (FEED) ASSY	
257	3-010-263-01	DETENT (SHAFT THRUST)	
* 258	1-679-422-12	LSW BOARD	
259	A-3301-954-B	BASE (OPT. S) (J) ASSY	
M101	A-3315-151-A	SLED MOTOR ASSY (251)	
M102	A-3301-998-A	SPINDLE MOTOR (S) SUB ASSY	

JACK **MAIN**

4. ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	1-681-577-11	JACK BOARD			
		**********			
		< CAPACITOR >			
C901	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C902	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C904	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C906	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN901	1-779-077-51	PLUG, CONNECTOR (CONTROL, AUDIO OUT)			
CNJ901	1-778-775-21	CONNECTOR, FPC 13P			
		< DIODE >			
D901	8-719-978-33	DIODE DTZ-TT11-6.8B			
D902	8-719-978-33	DIODE DTZ-TT11-6.8B			
D903	8-719-017-94	DIODE MA8180			
D904	8-719-017-94	DIODE MA8180			
		< FERRITE BEAD >			
FB901	1-500-445-21	FERRITE	0uH		
FB902	1-500-445-21	FERRITE	0uH		
FB903	1-500-445-21	FERRITE	0uH		
		< IC LINK >			
PS901	1-532-686-21	LINK, IC			
**********					
	A-3283-194-A	MAIN BOARD, COMPLETE			
		**********			
	1-676-339-12	MAIN FLEXIBLE BOARD			
	1-676-340-12	JACK FLEXIBLE BOARD			
		< CAPACITOR >			
C101	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C103	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C104	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C105	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C106	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C107	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C108	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C112	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C115	1-115-466-11	ELECT	1000uF	20%	16V
C119	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C121	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C122	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C123	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C201	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C203	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C206	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C301	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C302	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C303	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C304	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C306	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C307	1-128-934-11	CERAMIC CHIP	0.33uF	20%	10V
C308	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C309	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C310	1-115-466-00	ELECT	1000uF	20%	16V
C311	1-125-972-61	ELECT	100uF	20%	16V
C312	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C313	1-125-972-61	ELECT	100uF	20%	16V
C314	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C315	1-115-466-00	ELECT	1000uF	20%	16V
C316	1-125-972-61	ELECT	100uF	20%	16V
C317	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C318	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C319	1-128-499-11	ELECT	220uF	20%	16V
C407	1-124-589-11	ELECT	47uF	20%	16V
C408	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C409	1-126-157-11	ELECT	10uF	20%	16V
C410	1-126-157-11	ELECT	10uF	20%	16V
C411	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C412	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C413	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C414	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C418	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C419	1-124-589-11	ELECT	47uF	20%	16V
C431	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C501	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C502	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C503	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C504	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

MAIN LSW RF

Ref. No.	Part No.	Description			Remark
C505	1-124-589-11	ELECT	47uF	20%	16V
C506	1-124-589-11	ELECT	47uF	20%	16V
		< DIODE >			
D301	8-719-071-34	DIODE RB521S-30-TE61			
D304	8-719-071-34	DIODE RB521S-30-TE61			
D305	8-719-071-34	DIODE RB521S-30-TE61			
D306	8-719-069-56	DIODE UDZSTE-176.2B			
D307	8-719-988-61	DIODE 1SS355TE-17			
D310	8-719-977-03	DIODE DTZ5.6B			
D312	8-719-978-33	DIODE DTZ-TT11-6.8B			
		< IC >			
IC101	8-752-402-31	IC CXD3017Q			
IC201	6-800-418-01	IC MB90473PFV-G-111-BNDE1			
IC301	8-759-527-33	IC LB1930M-TLM			
IC302	8-759-829-46	IC BA8272AFV-E2			
IC303	8-759-827-97	IC XC61CN2502PR			
IC304	8-759-833-13	IC NJM2395AF08			
IC305	8-759-833-12	IC NJM2395AF05			
IC306	8-759-444-93	IC RH5RL33AA-T1			
IC401	8-759-662-11	IC TLV2362IPWR			
		< TRANSISTOR >			
Q202	8-729-901-00	TRANSISTOR	DTC124EK		
Q302	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q303	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q305	8-729-822-84	TRANSISTOR	2SB1202FAST		
Q402	8-729-027-23	TRANSISTOR	DTA114EKA-T146		
Q410	8-729-015-39	TRANSISTOR	DTC323TK		
Q420	8-729-015-39	TRANSISTOR	DTC323TK		
		< RESISTOR >			
R101	1-216-839-11	METAL CHIP	33K	5%	1/16W
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W
R103	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R104	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R105	1-216-857-11	METAL CHIP	1M	5%	1/16W
R106	1-216-853-11	METAL CHIP	470K	5%	1/16W
R107	1-216-833-11	METAL CHIP	10K	5%	1/16W
R114	1-216-821-11	METAL CHIP	1K	5%	1/16W
R122	1-216-839-11	METAL CHIP	33K	5%	1/16W
R123	1-216-845-11	METAL CHIP	100K	5%	1/16W
R125	1-216-839-11	METAL CHIP	33K	5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-216-864-11	METAL CHIP	0	5%	1/16W
R204	1-216-853-11	METAL CHIP	470K	5%	1/16W
R207	1-216-821-11	METAL CHIP	1K	5%	1/16W
R210	1-216-821-11	METAL CHIP	1K	5%	1/16W
R211	1-216-845-11	METAL CHIP	100K	5%	1/16W
R221	1-216-833-11	METAL CHIP	10K	5%	1/16W
R222	1-216-833-11	METAL CHIP	10K	5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W
R301	1-216-841-11	METAL CHIP	47K	5%	1/16W
R302	1-216-845-11	METAL CHIP	100K	5%	1/16W
R303	1-216-846-11	METAL CHIP	120K	5%	1/16W
R304	1-216-847-11	METAL CHIP	150K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R305	1-216-845-11	METAL CHIP	100K	5%	1/16W
R306	1-216-841-11	METAL CHIP	47K	5%	1/16W
R309	1-216-841-11	METAL CHIP	47K	5%	1/16W
R310	1-216-845-11	METAL CHIP	100K	5%	1/16W
R311	1-216-845-11	METAL CHIP	100K	5%	1/16W
R403	1-218-867-11	RES-CHIP	6.8K	2%	1/16W
R404	1-218-867-11	RES-CHIP	6.8K	2%	1/16W
R405	1-218-867-11	RES-CHIP	6.8K	2%	1/16W
R406	1-218-867-11	RES-CHIP	6.8K	2%	1/16W
R407	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R408	1-216-839-11	METAL CHIP	33K	5%	1/16W
R409	1-219-316-11	RES-CHIP	12K	2%	1/16W
R410	1-219-316-11	RES-CHIP	12K	2%	1/16W
R411	1-219-316-11	RES-CHIP	12K	2%	1/16W
R412	1-219-316-11	RES-CHIP	12K	2%	1/16W
R413	1-219-274-11	RES-CHIP	220	2%	1/16W
R414	1-219-274-11	RES-CHIP	220	2%	1/16W
R415	1-216-845-11	METAL CHIP	100K	5%	1/16W
R416	1-216-845-11	METAL CHIP	100K	5%	1/16W
R417	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R418	1-216-839-11	METAL CHIP	33K	5%	1/16W
R420	1-216-864-11	METAL CHIP	0	5%	1/16W
R421	1-219-282-21	RES-CHIP	470	2%	1/16W
R422	1-219-282-21	RES-CHIP	470	2%	1/16W
R501	1-218-871-11	RES-CHIP	10K	2%	1/16W
R502	1-218-871-11	RES-CHIP	10K	2%	1/16W
R503	1-218-871-11	RES-CHIP	10K	2%	1/16W
R504	1-218-871-11	RES-CHIP	10K	2%	1/16W
R505	1-218-871-11	RES-CHIP	10K	2%	1/16W
R506	1-218-871-11	RES-CHIP	10K	2%	1/16W
		< VARIABLE RESISTOR >			
RV201	1-223-834-11	RES, ADJ, CARBON 47K			
		< SWITCH >			
SW201	1-529-565-41	SWITCH, PUSH (1KEY) (MAGAZINE DETECT)			
		< VIBRATOR >			
X201	1-781-282-11	VIBRATOR, CERAMIC (4MHz)			
X501	1-760-307-11	VIBRATOR, CERAMIC (16.9344MHz)			
**********					
*	1-679-422-12	LSW BOARD **********			
		< SWITCH >			
SW3	1-529-565-41	SWITCH, PUSH (1KEY) (LIMIT)			
**********					
*	A-3326-947-A	RF BOARD, COMPLETE **********			
		< CAPACITOR >			
C101	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C102	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C103	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C105	1-126-206-11	ELECT CHIP	100uF	20%	6.3V

RF SWITCH

Ref. No.	Part No.	Description			Remark
C106	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C107	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C108	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C109	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C111	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C122	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C201	1-117-681-11	ELECT CHIP	100uF	20%	16V
C202	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C203	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C204	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C205	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C206	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C207	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C208	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C209	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C217	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN102	1-778-303-21	CONNECTOR, FPC (ZIF) 16P			
CNJ101	1-778-777-21	CONNECTOR, FPC 26P			
		< IC >			
IC101	8-752-089-74	IC CXA2581N-T4			
IC201	8-759-832-99	IC LA6576L-TE-L			
		< TRANSISTOR >			
Q101	8-729-141-48	TRANSISTOR	2SB624-BV345		
Q102	8-729-901-00	TRANSISTOR	DTC124EK		
		< RESISTOR >			
R101	1-216-801-11	METAL CHIP	22	5%	1/16W
R102	1-216-837-11	METAL CHIP	22K	5%	1/16W
R103	1-216-837-11	METAL CHIP	22K	5%	1/16W
R104	1-216-845-11	METAL CHIP	100K	5%	1/16W
R105	1-216-801-11	METAL CHIP	22	5%	1/16W
R106	1-216-864-11	METAL CHIP	0	5%	1/16W
R107	1-216-845-11	METAL CHIP	100K	5%	1/16W
R108	1-216-833-11	METAL CHIP	10K	5%	1/16W
R109	1-216-836-11	METAL CHIP	18K	5%	1/16W
R110	1-216-836-11	METAL CHIP	18K	5%	1/16W
R112	1-216-845-11	METAL CHIP	100K	5%	1/16W
R113	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R117	1-216-833-11	METAL CHIP	10K	5%	1/16W
R119	1-216-864-11	METAL CHIP	0	5%	1/16W
R120	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R121	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R122	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R201	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R202	1-216-833-11	METAL CHIP	10K	5%	1/16W
R203	1-216-833-11	METAL CHIP	10K	5%	1/16W
R204	1-216-839-11	METAL CHIP	33K	5%	1/16W
R205	1-216-833-11	METAL CHIP	10K	5%	1/16W
R206	1-216-839-11	METAL CHIP	33K	5%	1/16W
R207	1-216-833-11	METAL CHIP	10K	5%	1/16W
R208	1-216-839-11	METAL CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R209	1-216-833-11	METAL CHIP	10K	5%	1/16W
R210	1-216-839-11	METAL CHIP	33K	5%	1/16W
R211	1-216-833-11	METAL CHIP	10K	5%	1/16W
R212	1-216-839-11	METAL CHIP	33K	5%	1/16W
R213	1-216-833-11	METAL CHIP	10K	5%	1/16W
R214	1-216-839-11	METAL CHIP	33K	5%	1/16W
R215	1-216-841-11	METAL CHIP	47K	5%	1/16W
R216	1-216-842-11	METAL CHIP	56K	5%	1/16W
R218	1-216-841-11	METAL CHIP	47K	5%	1/16W
R219	1-216-843-11	METAL CHIP	68K	5%	1/16W
R220	1-216-834-11	METAL CHIP	12K	5%	1/16W
R222	1-216-821-11	METAL CHIP	1K	5%	1/16W
R223	1-216-819-11	METAL CHIP	680	5%	1/16W
		< SWITCH >			
SW1	1-529-566-31	SWITCH, PUSH (1KEY) (CHUKING END DETECT)			
SW2	1-529-566-31	SWITCH, PUSH (1KEY) (SAVE END DETECT)			
**********					
	1-681-578-11	SWITCH BOARD			
		**********			
		< SWITCH >			
SW801	1-692-431-21	SWITCH, TACTILE (⏏)			
**********					
		MISCELLANEOUS			
		**********			
251	1-676-341-11	OP FLEXIBLE BOARD			
⚠255	8-820-103-11	OPTICAL PICK-UP KSS-720A/C-RP			
M101	A-3315-151-A	SLED MOTOR ASSY (251)			
M102	A-3301-998-A	SPINDLE MOTOR (S) SUB ASSY			
M103	A-3301-123-A	ELJ MOTOR ASSY (CHUCKING)			
M104	A-3301-123-A	ELJ MOTOR ASSY (ELEVATOR)			
RV202	1-227-137-11	RES, VAR, SLIDE 10K (ELEVATOR HEIGHT SENSOR)			
**********					
		**********			
		HARDWARE LIST			
		**********			
#2	7-685-792-09	SCREW +PTT 2.6X6 (S)			
#3	7-685-781-09	SCREW +PTT 2X4 (S)			
#4	7-624-104-04	STOP RING 2.0, TYPE-E			
#5	7-627-554-07	SCREW, PRECISION +P 2X2.2			
#6	7-628-253-00	SCREW +PS 2X4			
#7	7-627-553-27	SCREW, PRECISION +P 2X2.5			
#8	7-624-102-04	STOP RING 1.5, TYPE-E			
#9	7-627-850-28	SCREW, PRECISION +P 1.4X3			
#10	7-627-000-00	SCREW, PRECISION +P 1.7X2.2 TYPE 3			
#11	7-627-553-37	PRECISION SCREW +P 2X3 TYPE 3			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MEMO

REVISION HISTORY

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Ver.	Date	Description of Revision
1.1	2001.07	Change of Mechanism Deck (MG-251B-137) (ENG-01008)
1.0	2001.02	New